FRIDAY, NOVEMBER 1 st , 2019			
09:00-20:30	Arrival & Registration		
18:00-20:00	Dinner		
	SATURDAY, NOVEMBER 2 nd , 2019 08:30-12:00		
	Building No. 3, Meeting Room No. 1		
08:30-08:55	Opening Ceremony Chaired by Guochen Zhang (Vice President of Dalian Ocean University)		
08:30-08:35	Welcoming Address by Jie Yao (Chairman of Dalian Ocean University Council)		
08:35-08:40	Address by Daigang Yang (Chairman of Dalian Association for Science and Technology Council)		
08:40-08:45	Address by L. Courtney Smith (President of International Society of Developmental and Comparative Immunology)		
08:45-08:50	Address by Linsheng Song (President of Asian Society of Developmental and Comparative Immunology)		
08:50-08:55	5 Conferring the Certificate of Honorary President and Vice President of ASDCI		
08:55-09:10	Group Photo		
09:10-12:00	Plenary Lecture Chaired by Linsheng Song and Miki Nakao		
09:10-09:50	L. Courtney Smith (George Washington University, USA)		
	Sequence diversity in the genes and proteins of the SpTransformer system in sea urchins		
09:50-10:30	Kenneth Söderhäll (Uppsala University, Sweden)		
	Blood cell synthesis in a crustacean		
10:30-10:40	Break		
10:40-11:20	Yaofeng Zhao (China Agricultural University, China) Immunoglobulins in tetrapod other than human and mouse: surprises and applications		

11:20-12:00	Maria Forlenza (Wageningen University, Netherlands) Trypanosome infections in Zebrafish: seeing is believing
12:00	Lunch

SATURDAY, NOVEMBER 2 nd , 2019			
14:00-17:35			
	Building No. 5, Multi-function Hall	Building No. 1, Room 402	Building No. 5, Meeting Room No. 5
	Session 1 Evolution and origins of immune system	Session 2 Innate Immunity	Session 3 Ecoimmunology and immunometabolism
	Chaired by L. Courtney Smith and Shicui Zhang	Chaired by Kenneth Söderhäll and Jinxing Wang	Chaired by Liangbiao Chen and Wuhan Xiao
	Invited Lecture	Invited Lecture	Invited Lecture
	Jianhai Xiang (Institute of Oceanology, Chinese Academy of Sciences, China)	Jinxing Wang (Shandong University, China)	Wuhan Xiao (Institute of Hydrobiology, Chinese Academy of Sciences, China)
14:00-14:25	A comprehensive view of the immunity characteristics of the shrimp (<i>Litopenaeus</i> <i>vannamei</i>) and the sea cucumber (<i>Apostichopus</i> <i>japonicas</i>) by digging their genome data	Regulation of microbiota homeostasis in shrimp	Zebrafish <i>phd3</i> negatively regulates antiviral response via suppression of Irf7 transactivity independent of its prolyl hydroxylase activity
	Heng Chi (Ocean University of China, China)	Suparat Taengchaiyaphum (National Center for Genetic Engineering and Biotechnology, Thailand)	Hao Chen (Institute of Oceanology, Chinese Academy of Sciences, China)
14:25-14:40	The regulatory functions of transcription factor GATA-3 during the Th2-like response in Atlantic salmon (<i>Salmo</i> <i>salar</i>)	The roles of antimicrobial peptides in shrimp survived WSSV infection	Synergistical modulation of Ca ²⁺ /CaM-NOS-TNF pathway by multiple microRNAs hallmarks resistance of oyster against aerial exposure
	Zhujin Ding (Jiangsu Ocean University, China)	Cuiluan Yao (Jimei University, China)	Qingguo Meng (Nanjing Normal University, China)
14:40-14:55	Identification and expression analysis of an intelectin gene from <i>Megalobrama</i> <i>amblycephala</i> and its regulation on the phagocytosis and killing activity of macrophages	TAB2 is critical for TAK1 and TRAF6-mediated NF-κB activation in large yellow croaker	SpiroplasmaeriocheirisinvasionintoMacrobrachium $rosenbergii$ rosenbergiihemocytesismediatedbypathogenenolaseandlipopolysaccharideand β -1,3-glucanbinding protein
14:55-15:10	Sheng Wang (Sun Yat-Sen University, China)	Fan Mao (South China Sea Institute of Oceanology, Chinese Academy of Sciences, China)	Phasini Buathongkam (National Center for Genetic Engineering and Biotechnology Thailand)

	WSSV establishes a novel IE1/JNK/c-Jun positive feedback loop to drive viral replication	Phagosomal proteomics to study invertebrate phagocytosis in <i>Crassostrea</i> gigas	Learning from survivors of white spot syndrome virus outbreak
15:10-15:25	Mofei Li (Institute of Oceanology, Chinese Academy of Sciences, China)	Junfeng Xie (Sun Yat-Sen University, China)	Hongtao Nie (Dalian Ocean University, China)
	The teleost complement factors involved in the regulation of complement activation and immune cell activity	Protein A from orange-spotted nervous necrosis virus triggers type I interferon production in fish cell via RIG-I/MDA5-MAVS-IRF3 signal pathway	Transcriptome analysis reveals differential immune related genes expression in <i>Ruditapes philippinarum</i> under hypoxia stress
15:25-16:25	Break & Pos	ster (Building No. 5, Multi-fun	ction Hall)
	Invited Lecture	Invited Lecture	Invited Lecture
16:25-16:50	Shaochun Yuan (Sun Yat-Sen University, China)	Hai-peng Liu (Xiamen University, China)	Jian He (Sun Yat-Sen University, China)
10.25-10.50	Functional characterization of the ancestral RAG transposon sheds new lights on the origin and evolution of V(D)J recombination	White spot syndrome virus infection in a crustacean	The replication of infectious spleen and kidney necrosis virus was promoted under hypoxia
	Xianghui Kong (Henan Normal University, China)	Tianming Wang (Zhejiang Ocean University, China)	Jianguo Su (Huazhong Agricultural University, China)
16:50-17:05	Molecular characteristics of pIgR in grass carp (<i>Ctenopharyngodon idella</i>) and comparative analysis between the different animals	Discover the KISS/GPR54 signaling system in sea cucumber	MxG negatively regulates type I interferon by targeting IPS-1 and STING in grass carp
	Bei Wang (Guangdong Ocean University, China)	Haoyang Li (Sun Yat-Sen University, China)	Guilan Di (Henan Normal University, China)
17:05-17:20	Insights into the evolution of the suppressors of cytokine signaling (socs) gene family in vertebrates	STING dsDNA sensing induces IRF-Vago antiviral mechanism in shrimp	Phagocytosis of different haemocyte subpopulations of <i>Babylonia areolata</i>
17:20-17:35	Xinyu Jiang (Henan Normal University, China)	Weiwei Li (East China Normal University, China)	Ruijun Li (Dalian Ocean University, China)
	Distinct expression profiles and overlapping functions of IL-4/13A and IL-4/13B in grass	The antibacterial response of Chinese mitten crab	Immune defense enzymes: Advances in L-amino acid oxidase of marine animals
	grass carp (Ctenopharyngodon idella)		

18:00-20:00

Dinner

SUNDAY, NOVEMBER 3 rd , 2019 08:30-12:00			
	Building No. 5, Multi-function Hall	Building No. 1, Room 402	Building No. 5, Meeting Room No. 5
	Session 1 Evolution and origins of immune system	Session 2 Innate Immunity	Session 3 Ecoimmunology and immunometabolism
	Chaired by Pin Nie and Geert F. Wiegertjes	Chaired by Maria Forlenza and Fuhua Li	Chaired by Qinghui Ai and Bo Peng
	Invited Lecture	Invited Lecture	Invited Lecture
08:30-08:55	Geert F. Wiegertjes (Wageningen University, Netherlands)	Fuhua Li (Institute of Oceanology, Chinese Academy of Sciences, China)	Bo Peng (Sun Yat-Sen University, China)
	Evidence of trained immunity in fish macrophages	The hemocytes mediated innate immunity in shrimp	Reactivation of glycine metabolism to eliminate serum-resistant bacteria
08:55-09:10	Qian Ren (Nanjing Normal University, China)	Xianwei Wang (Shandong University, China)	Kallaya Sritunyalucksana (National Center for Genetic Engineering and Biotechnology, Thailand)
	Evolution of invertebrate immune system: gene replication, domain doubling and horizontal transfer	Maturation of a new antimicrobial peptide inhibits <i>Aeromonas hydrophila</i> infection in red swamp	Avoiding false-positive shrimp-virus PCR tests results that arise from endogenous viral elements
	Junya Wang	crayfish <i>Procambarus clarkii</i> Hao Wang	(eves) Songzhe Fu
09:10-09:25	(Shanghai Ocean University)	(Institute of Oceanology, Chinese Academy of Sciences, China)	(Dalian Ocean University, China)
	Structure of grass carp interleukin-2 provides insights into the evolution of four α -helical cytokine family	Adapt to extreme environment: How the deep-sea mussel cope with symbiotic bacteria	Safety assessment of animal-use probiotics as an immune booster: two case studies
09:25-09:40	Graduate Student Lecture	Graduate Student Lecture	Graduate Student Lecture
	Xiaowei Qin (Sun Yat-Sen University, China)	Dongli Li (Xiamen University, China)	Xingjuan Wang (Hainan University, China)
	The roles of mandarin fish STING in innate immune defense against infectious spleen and kidney necrosis virus infection	$Cq\beta$ -actin binding protein Cqprofilin promotes white spot syndrome virus replication via interacting with viral nucleocapsid protein vp15 in red claw crayfish Cherax quadricarinatus	Coral lectin implicates in the immunity and symbiosis with Symbiodinium

	Graduate Student Lecture	Graduate Student Lecture	Graduate Student Lecture
09:40-09:55	Nehlah Rosli (Faculty of Agriculture, Department of Bioscience and Biotechnology, Japan)	Yan Gao (Huazhong Agricultural University, China)	Libo Hou (Nanjing Normal University, China)
	Functional analysis of two complement C4 isotypes of carp using recombinant proteins	The antiviral mechanism of viperin and its splice variant in spring viremia of carp virus infected fathead minnow cells	The role of Wnt signaling pathway in the process of <i>Spiroplasma eriocheiris</i> infected the <i>Eriocheir</i> <i>sinensis</i> and caused the Tremor disease
09:55-10:20		Break	
	Invited Lecture	Invited Lecture	Invited Lecture
10:20-10:45	Yinglun Han (Liaoning Normal University, China)	Lingling Wang (Dalian Ocean University, China)	Liqun Lv (Shanghai Ocean University, China)
	Embryological stages in the lamprey	The immune recognition mechanism in molluscs	Stress response of fish contributes to viral disease outbreak: a study from grass carp reovirus
	Graduate Student Lecture	Graduate Student Lecture	Graduate Student Lecture
	Libing Xu (Fujian Agriculture and Forestry University, China)	Ruoyun Zeng (Sun Yat-Sen University, China)	Lingke Liu (Xiamen University, China)
10:45-11:00	Molecular cloning and functional characterization of c-Jun in large yellow croaker (<i>Larimichthys crocea</i>)	Deletion of infectious spleen and kidney necrosis virus ORF022L reduces virus virulence and induces protection against challenge in mandarin fish	A histone K-lysine acetyltransferase <i>Cq</i> kat2a-like gene promotes white spot syndrome virus infection by enhancing histone h3 acetylation in red claw crayfish <i>Cherax</i> <i>quadricarinatus</i>
10:45-11:00	functional characterization of c-Jun in large yellow croaker	and kidney necrosis virus ORF022L reduces virus virulence and induces protection against challenge	acetyltransferase Cqkat2a-like gene promotes white spot syndrome virus infection by enhancing histone h3 acetylation in red claw crayfish <i>Cherax</i>
10:45-11:00	functional characterization of c-Jun in large yellow croaker (<i>Larimichthys crocea</i>)	and kidney necrosis virus ORF022L reduces virus virulence and induces protection against challenge in mandarin fish	acetyltransferase <i>Cq</i> kat2a-like gene promotes white spot syndrome virus infection by enhancing histone h3 acetylation in red claw crayfish <i>Cherax</i> <i>quadricarinatus</i>
	functional characterization of c-Jun in large yellow croaker (<i>Larimichthys crocea</i>) Graduate Student Lecture Liguo Ding (Huazhong Agricultural	and kidney necrosis virus ORF022L reduces virus virulence and induces protection against challenge in mandarin fish Graduate Student Lecture Zeinab Hassan Ahmed Elsayed (Shanghai Ocean University,	acetyltransferase <i>Cq</i> kat2a-like gene promotes white spot syndrome virus infection by enhancing histone h3 acetylation in red claw crayfish <i>Cherax</i> <i>quadricarinatus</i> Graduate Student Lecture <u>Zhuang Wang</u> (East China University of Science and Technology,
	functional characterization of c-Jun in large yellow croaker (<i>Larimichthys crocea</i>) Graduate Student Lecture Liguo Ding (Huazhong Agricultural University, China) Pharyngeal immunity in teleost fish, an ancient mucosal defense to combat	and kidney necrosis virus ORF022L reduces virus virulence and induces protection against challenge in mandarin fish Graduate Student Lecture Zeinab Hassan Ahmed Elsayed (Shanghai Ocean University, China) Characterization of interleukin-20 and IL-20 receptor α in grass carp	acetyltransferase <i>Cq</i> kat2a-like gene promotes white spot syndrome virus infection by enhancing histone h3 acetylation in red claw crayfish <i>Cherax</i> <i>quadricarinatus</i> Graduate Student Lecture Zhuang Wang (East China University of Science and Technology, China) Identification the inflammasome component <i>Sm</i> ASC in <i>Scophthalmus</i>

	(Ocean University of China, China) Establishment and characterization of two head kidney macrophage cell lines from large yellow croaker (<i>Larimichthys crocea</i>)	(Sun Yat-Sen University, China) Penaeidins restrict white spot syndrome virus infection by antagonizing the envelope proteins to block viral entry	(Binzhou Medical University, China) The influence of nano-plastics on gastric epithelial cells
	Graduate Student Lecture	Graduate Student Lecture	Graduate Student Lecture
	Zaichao Zheng (Third Institute of Oceanography, Ministry of Natural Resources, China)	Yanyun Guan (Fujian Agriculture and Forestry University, China)	Honghui Li (Changsha University, China)
11:30-11:45	Regulation of hemocyte homeostasis in crayfish: the role of gill	Molecular characterization and expression analysis of eleven interferon regulatory factors (IRFs) in the perciform fish, large yellow croaker (<i>Larimichthys</i> <i>crocea</i>)	ProtectiveeffectandmechanismofN-acetylcysteineonoxidativestressandautophagy in muscle inducedbybyinfectionofProteusvulgarisfromchinesesoft-shelledturtle(Pelodiscus sinensis)turtle
	Graduate Student Lecture	Graduate Student Lecture	Graduate Student Lecture
11:45-12:00	Yueyi Wang (Zhejiang University, China) Identification of an NLRP1 inflammasome in teleost fish	Xiangyu Zhang (South China Sea Institute of Oceanology, Chinese Academy of Sciences, China)	Jun Yang (Sun Yat-Sen University, China)
	reveals a unique mechanism for inflammatory caspase activation and IL-1 maturation	The critical role of chloride ion influx in phagocytosis and bactericidal activity in <i>Crassostrea gigas</i>	Metabolic mechanism by which L leucine-induced metabolome eliminates <i>Streptococcus iniae</i>
12:00-13:30		Lunch	

SUNDAY, NOVEMBER 3 rd , 2019 14:00-18:00			
	Building No. 1, Room 402	Building No. 5, Meeting Room No. 5	Building No. 5, Multi-function Hall
	Session 2	Session 3	Session 4
	Innate Immunity	Ecoimmunology and immunometabolism	Adaptive Immunity and Vaccines
	Chaired by Kallaya Sritunyalucksana and Jun Zou	Chaired by Yongan Zhang and Xinhua Chen	Chaired by Qiwei Qin and Zhen Xu
	Invited Lecture	Invited Lecture	Invited Lecture
14:00-14:25	Jun Zou (Shanghai Ocean University, China)	Xinhua Chen (Fujian Agriculture and Forestry University, China)	Zhen Xu (Huazhong Agricultural University, China)
	The interferon mediated antiviral response is positively regulated by	Function and signal pathways of large yellow croaker (<i>Larimichthys</i>	The novel function of mucosal IgT in teleost against virus infection
	IRF2a in zebrafish Dahai Yang (East China University of Science and Technology, China)	<i>crocea</i>) interleukin-2 Hui Li (Sun Yat-Sen University, China)	Jialong Yang (East China Normal University, China)
14:25-14:40	Zebrafish GSDMEb cleavage gates the pyroptosis enhances septic-AKI <i>in vivo</i>	Myo-inositol improves the host's ability to eliminate balofloxacin-resistant <i>Escherichia coli</i>	Regulatory mechanisms of T cell immunity in teleost
	Graduate Student Lecture	Graduate Student Lecture	
14:40-14:55	Jie Gao (Shandong University, China)	Zheng Xu (Binzhou Medical University, China)	Yingying Li (Liaoning Normal University, China)
	MD-2 homologue recognizes the white spot syndrome virus lipid component and induces antiviral molecule expression in shrimp	<i>Helicobacter pylori</i> regulates ILK to influence autophagy through Rac1/F-actin and RhoA/F-actin signaling pathways in gastric epithelial cell	Mechanism on the lamprey adaptive immune system development regulated by intestinal <i>Aeromonas</i>
14:55-15:10	Graduate Student Lecture	Graduate Student Lecture	Graduate Student Lecture
	Ming Jiang (Sun Yat-Sen University, China)	Shuo Han (Dalian Ocean University, China)	Yu Zhang (East China Normal University, China)
	Phenylalanine modulates innate immune of Danio rerio to clear ceftazidime resistant <i>Vibrio alginolyticus</i>	Comparative Characterization of bacterial communities in digestive glands of <i>Crassostrea gigas</i> fed with different diets	MAPK/ERK regulates Nile tilapia adaptive immunity via controlling lymphocyte activation, proliferation and infection elimination

	Graduate Student Lecture	Graduate Student Lecture	Graduate Student Lecture
15:10-15:25	Yue Lin (South China Sea Institute of Oceanology, Chinese Academy of Sciences, China)	Yu Tang (Zhejiang University)	Cheng Li (East China Normal University, China)
	Transcriptomic analyses the molecular mechanism of hemocyte-mediated phagocytosis in <i>Crassostrea</i> hongkongensis	Immunotoxicity of microplastics and benzo[a]pyrene alone or in combination to a bivalve species: Particle size dependent interactions and potential underlying mechanism	Teleost employs IL-17 triggered NF-κB signaling to regulate ancestral T cell immunity against <i>Streptococcus agalactiae</i> infection
	Graduate Student Lecture	Graduate Student Lecture	Graduate Student Lecture
	Pengfei Mu (Fujian Agriculture and Forestry University, China)	Md Hasim Rabbi (Dalian Ocean University, China)	Zhiwen Wang (Guangdong Ocean University, China)
15:25-15:40	Regulation of Large Yellow Croaker (Larimichthys crocea) Interleukin-2	Effects of dietary selenium (Se) and vitamin C (Vc) on growth, digestion, immunity and selenium content of the juvenile sea cucumber (<i>Apostichopus japonicus</i>)	Functional analysis of CD6 of Nile tilapia (<i>Oreochromis</i> <i>niloticus</i>)
15:40-16:00		Break	
16:00 16:15	Linlin Zhang (Institute of Oceanology, Chinese Academy of Sciences, China)	Xinjiang Lu (Ningbo University, China)	Jianmin Ye (South China Normal University, China)
16:00-16:15	Gene duplication and functional divergence of oyster innate immune genes	The subfunctionalization of chemokine receptors in teleost	The role of long-lived plasma cells in immunological memory in teleosts
	Yu Huang (Guangdong Ocean University, China)	Jiejie Sun (Dalian Ocean University, China)	Chao Pei (Henan Normal University, China)
16:15-16:30	Serotransferrin and C-type lectin could mediated NCC activity by interacting with NCCRP-1 in Nile tilapia (<i>Oreochromis niloticus</i>)	An ancient BCR molecule-mediated signaling promotes the production of immunoglobulin domain-containing proteins and hemocyte phagocytosis in oyster	A developed subunit vaccine based on fiber protein VP56 of grass carp reovirus providing immune protection against grass carp hemorrhagic disease
	Pengfei Liu (Dalian Ocean University, China)	Xingkun Jin (Hohai University, China)	Xiaoxue Yin (South China Normal University, China)
16:30-16:45	ALDH7A1 is a protein that protects Atlantic salmon against <i>Aeromonas</i> <i>salmonicida</i> at the early	Transcriptome-wide analysis of immune responses in <i>Eriocheir sinensis</i> hemocytes after challenge with different	TNP-specific antigen induces the oligomannose modification of IgM heavy chain in Nile tilapia

	stages of infection	microbial derivatives	(Oreochromis niloticus)
	Hengwei Deng (Sun Yat-Sen University, China)	Shouwen Chen (East China University of Science and Technology, China)	Jie Zhang (Henan Normal University, China)
16:45-17:00	The NF-κB family memberDorsal is involved inresistancegram-positivebacterialinfectioninScyllaparamamosain		Transcriptome analysis of Qihe crucian carp (<i>Carassius</i> <i>auratus</i>) in response to <i>Aeromonas hydrophila</i>
17:30-18:00	Closing Ceremony (Building No. 5, Multi-function Hall) Chaired by Lingling Wang (Secretary of Asian Society of Developmental and Comparative Immunology)		
17:30-17:40	Announcement of Oral & Poster Awards		
17:40-17:45	Closing address by Lingling Wang		
17:45-18:00	Introduction of the 15 th Congress of ISDCI by Maria Forlenza (Secretary of International Society of Developmental and Comparative Immunology)		
18:00-20:00	Dinner		

MONDAY, NOVEMBER 4 th , 2019 08:00-10:30		
08:00-10:30	Visit to Aquaculture Company	