IMBC2016

Hyatt Regency Inner Harbor

Baltimore, Maryland, USA

29 August - 2 September

International Marine Biotechnology Conference

11th Triennial Conference

IMBC 2016

PROGRAM HANDBOOK

IMBC2016

29 August - 2 September

Hyatt Regency Baltimore

Baltimore, Maryland, USA

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Program and Abstracts for the 11th International Marine Biotechnology Conference (29 August—2 September 2016, Baltimore, Maryland, USA

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HYATT REGENCY MEETING SPACE MAP

PRESIDENT'S WELCOME MESSAGE

Dear colleagues:

Our organizing committee is proud and honored to welcome you to the International Marine Biotechnology Conference (IMBC 2016) in Baltimore.

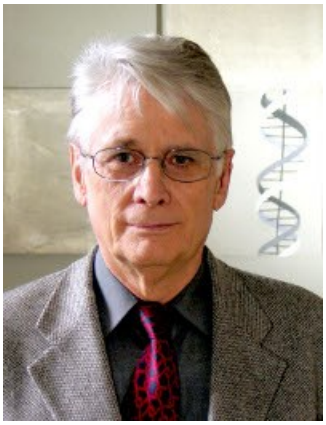
The first International Marine Biotechnology Conference (IMBC) was held in Tokyo in 1989. This assembly is the leading conference in marine biotechnology, bringing together world leaders which outline and realize novel biotechnological strategies in the field. Breakthrough discoveries are presented; some of them are purely basic, others are more applied and (close to) ready for a transformation to innovation and to commercialization. Those transition strategies become more and more important and they increasingly "invade" also into basic science/universities/other public institutions.

The three major challenging health problems in our ageing population ranks cancer, cardiovascular and bone diseases as first, followed by diabetes and mental disorders. Those threats have to be addressed in a rational way in the future. But from where to take the solutions? Needless to say that those threatening and hazardous challenges to humans as well as to the wildlife can be solved primarily and best by copying strategies from nature. Nature has, during its long history of evolution, shaped the best solutions to ameliorate, to protect and to defeat diseases in an optimal and simultaneously gentle manner. However the question emerged from where to take those natural resources, from where to copy the strategies. Surely the marine environment is the most suitable origin because of the high diversity of its biota – because of the complexity of the environment and the extreme physical and chemical frameworks the organisms live in. Without those resources the success of the past in clinics would not be real. However, we have to use those biological bounties with caution, and in a sustainable way in order to allow the transfer of the knowledge for human benefit and welfare in a causal-analytical way.

Nature is beautiful precious and has a priceless value. We hope, we are convinced, that the participants will elaborate important strategies also applicable for radically new views in a sustainable exploitation of the marine biota. The many workshops, session and plenary lectures will contribute to this success and allow the emergence of new molecular and bio-(in)organic technologies.

We are very much thankful to Prof. R.T. Hill and his team for all the efforts to bring this meeting to reality and to a success. The Board of the International Marine Biotechnology Association has been imperative and effective to frame this meeting in a appropriate atmosphere.

Glad that you are with us,



Werner E.G. Müller

IMBA President

IMBA International MARINE BIOTECHNOLOGY Association Established 1989

PROCEEDINGS FOR IMBC2016

Proceedings of IMBC2016 will be published in a special issue of *Marine Drugs* , *Advances and New Perspectives in Marine Biotechnology II 2016*.

We cordially invite all presenters at IMBC2016 to submit a comprehensive/mini review, an original research article, or a short communication to this special issue.

Please go to the special IMBC2016 web page for instructions on how to prepare and submit your manuscript (http://www.mdpi.com/journal/marinedrugs/special_issues/marine_biotechnology_2016).

Marine Drugs will defray publication costs for a number of the submitted manuscripts.

DEADLINE FOR MANUSCRIPT SUBMISSIONS IS 31 JANUARY 2017

Special Issue Editors

Dr. Allen Place

Institute of Marine and Environmental Technology, 701 E Pratt Street, Baltimore, Maryland 21202, USA

Dr. Rosemary Jagus

Institute of Marine and Environmental Technology, 701 E Pratt Street, Baltimore, Maryland 21202, USA

Dr. Joy Watts

University of Portsmouth, King Henry Building, King Henry 1st Street, Portsmouth, Hampshire, P01 2DY, UK

WELCOME FROM DIRECTOR OF IMBC 2016

Welcome to Baltimore and the 11th International Marine Biotechnology Conference (IMBC)! The IMBC returns to the USA for the first time since the 2nd IMBC in 1991, which was also held in Baltimore. Much has changed since the 2nd IMBC, both in Baltimore and around the world, and never has the importance of marine biotechnology been greater than it is today.

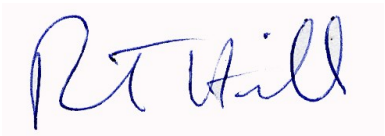
The theme for IMBC2016 is "Health, Wealth, and Innovation". These three areas summarize the overarching themes that are driving marine biotechnology. Marine biotechnology stands to play a critical role as we face many of the challenges in today's world in areas such as food, energy, and sustainability.

We are thrilled with the quality and diversity of the program for IMBC2016. Delegates will be able to experience work that is at the forefront of what is being done globally. IMBC2016 features speakers and attendees from over 22 countries around the world, and spans a wide variety of topics such as aquaculture, bioremediation, biofuels, and biomaterials.

If it wasn't for the support of our sponsors and other local organizations, this conference would not have been possible. Everyone is encouraged to find out more about sponsors and partner organizations, all of whom are listed in the program. We would like to truly thank everyone involved in allowing such a terrific conference to come together.

In addition to the outstanding scientific program, the 11th IMBC provides us with an opportunity to catch up socially with friends and colleagues from around the world. On behalf of the Board of the International Marine Biotechnology Association and everyone else responsible for planning IMBC2016, we wish you a very successful and enjoyable conference. We thank you for attending and welcome you to Baltimore for what should be an exciting conference!

Best wishes,



Russell Hill,

Director of 11th International Marine Biotechnology Conference

INTERNATIONAL MARINE BIOTECHNOLOGY ASSOCIATION (IMBA) BOARD MEMBERS

Executive Committee

Prof. Werner Müller, President, Germany

Prof. Russell Hill, Vice President, IMBC2016 Conference Director, USA

Dr. Nicholas Hammond, Secretary-Treasurer, USA

Prof. Joseph Baker, Chair - Nominating Committee, Australia

Prof. Tadashi Matsunaga, Immediate Past President, Japan

Members-at-Large

Prof. Chris Battershill, New Zealand

Prof. Grant Burgess, UK

Prof. Pamela Chavez-Crooker, Chile

Prof. Vernon Coyne, South Africa

Prof. Bernard Degnan, Australia

Prof. Alan Dobson, UK

Prof. Nobuhiro Fusetani, Japan

Prof. Se-Kwon Kim, Korea

Dr. S. Raghu Kumar, India

Dr. Hanzhi Lin, USA

Prof. Song Qin, China

Dr. John van der Meer, Canada

Dr. Joy Watts, UK

Prof. Yonathan Zohar, USA

VENUE AND CONFERENCE STRUCTURE

Registration

Registration will be located on the 2nd Level outside of the main meeting room and will be staffed from 1600 - 1900 on Monday 29th, 0800 - 1600 Tuesday - Thursday, and 0800 -1330 Friday.

Name Badges

Delegates are requested to wear their name badge at all times during the conference. This badge is also your ticket to included functions.

Presentation Uploads

All presentations are to be loaded onto the conference laptop computers in Speakers Prep in advance - you cannot use your own laptop. Please ensure that you take your CD / USB to the Speakers Prep area to be loaded well before your session (preferably the day before). While you can check that the presentation works after uploading, there is no computer availability for major changes to be done. Please do not leave your upload until the last moment.

NOTE Opening Hours	Monday 29th	1600 - 2030
	Tuesday 30th	0800 - 1600
	Wednesday 31st	0800 - 1600
	Thursday 1st	0800 - 1600
	Friday 2nd	0800 - 1100

Conference Structure

For session details, refer to the Timetable pages (printed in color)

Each morning in the Constellation Auditorium is a plenary session which includes the plenary speakers for that day. After morning tea, concurrent sessions will commence in the breakout rooms and continue throughout the day. Most talks in the concurrent sessions in the breakout rooms are 20 minutes (15 minute presentations with 5 minutes for questions). Every effort will be made by the chairpersons to keep to the allotted times, allowing delegates to move between rooms and presentations. If you are a presenter, please assist the program by keeping your talk within the allotted timeframe.

The scientific program finishes at 1130 on Friday, with the last 15 minutes in the Constellation Auditorium with conference closing statements and an announcement of the location for the 12th IMBC in 2019.

Posters

Posters will be on display for the entire conference in the 2nd Floor Atrium. The Poster Cocktail Session will be held on Tuesday evening from 1620 - 1800. Poster presenters will be standing with their posters during this session to answer any questions. Student posters will be judged during this Poster Session. A selection of hors d'oeuvres and drinks will be served.

Exhibition Booth Displays

Exhibition booth displays from our sponsors and exhibitors will be in the 2nd Floor Foyer for the duration of the conference and can be accessed throughout the conference, Tuesday to Friday. All refreshments will be served in this area during the conference to enable maximum time for delegates to meet Exhibition Stand holders and study the Posters. Exhibitors have put in enormous cost and effort to exhibit to the marine biotechnology audience. Please make them feel welcome.

Conference Dress Code

Dress for the conference is business-casual comfortable clothing. Ties and jackets are not necessary. Dress for the Conference Banquet on Thursday 1 September is smart casual.

Messages

Please check the notice board by the Conference Registration regularly for messages.

During conference hours: 0800-1700 Secretariat Telephone is: 1-267-994-7098

Public Transport, Taxis, ATM and Banking

Please check with the Convention Center Reception on the Ground Level.

CONFERENCE SOCIAL FUNCTIONS

MONDAY—WELCOME RECEPTION - 16:00-20:30

The welcome reception features the opening ceremony, the opening plenary talk given by Dr. Yonathan Zohar, and a reception with live music, food, and drinks.

TUESDAY—POSTER SESSION - 16:20-18:00

During the poster session, drinks and hors d'oeuvres will be served. This session will give poster presenters the opportunity to discuss their work with conference participants. Authors will stand with their posters for discussions. Student posters will be judged during this time.

WEDNESDAY—FREE EVENING/2ND POSTER SESSION - 17:10-18:30

A second poster session will be held on Wednesday evening to enable presenters and delegates to continue informal discussions. Attendees have a free evening to explore Baltimore.

THURSDAY—CONFERENCE BANQUET - 18:00-20:00

The conference banquet will be held in the Constellation Ballroom on Thursday, September 1, beginning at 18:00. The banquet will be buffet-style, and includes drinks.

FRIDAY—CLOSING CEREMONIES - 11:30-12:00

The closing ceremonies for IMBC2016 will sum up what will hopefully be a successful and exciting conference, and will serve as the platform to announce the location for the next IMBC in 2019.

STUDENT PRIZES

Student prizes will be judged by a panel during the conference, and prizes will be awarded during the closing ceremony.

HONDA

HONDA BEST ORAL PRESENTATION

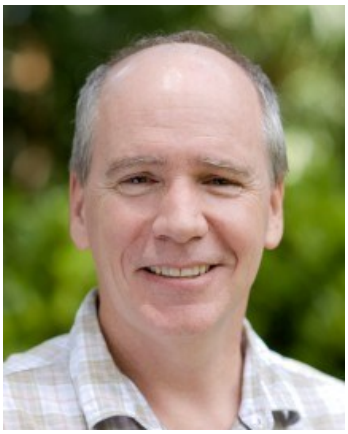
Honda has donated a prize of $500 USD for the best student oral presentation.

HONDA BEST POSTER PRESENTATION

Honda has donated a prize of $500 USD for the best student poster presentation.

PLENARY SPEAKERS

The committee is pleased to present plenary speakers at **IMBC 2016** ***Health, Wealth, and Innovation***, a wonderful mix of the finest researchers in marine biotechnology:



PROFESSOR BERNARD (BERNIE) DEGNAN

Dr. Bernie Degnan is an Australian Laureate Fellow and Professor in the School of Biological Sciences at The University of Queensland in Brisbane, Australia. He is interested in the genomic, cellular and developmental mechanisms that underpin the formation and evolution of animals.

PROFESSOR PAUL FALKOWSKI

Dr. Paul G. Falkowski is Bennet Smith Professor in Business and Natural Resources, Distinguished Professor Department of Earth and Planetary Sciences, and Director of Rutgers Energy Institute at Rutgers The State University of New Jersey. Dr. Falkowski's scientific interests include evolution of the Earth systems, paleoecology, photosynthesis, biophysics, biogeochemical cycles, and symbiosis.

PROFESSOR HU QIANG

Dr. Hu Qiang is Professor at the Institute of Hydrobiology, Chinese Academy of Science. His research direction focuses on algae biology and biotechnology. His research will address the algae photosynthesis, physiology and biochemistry, cell and molecular biology, bio-optical system design of the reactor, large-scale cultivation of microalgae, microalgae bioenergy and biochemicals research and development of high value-added, and the use of treated wastewater and microalgae with high industrial emissions of carbon dioxide and the like.

PLENARY SPEAKERS

PROFESSOR TADASHI MARUYAMA

Dr. Tadashi Maruyama is Deputy Director of Research and Development at the Center for Marine Biosciences, Japan Agency for Marine-Earth Science and Technology. His research focuses on symbiotic interaction and evolution of Chemosynthetic symbiosis between deep-sea bivalves and symbiotic bacteria, ecology of deep-sea invertebrates, on kleptoplasty in a sea-slug, on monitoring of disease in marine mammals including whales etc. Development of deep-sea plankton analyzing equipment.

PROFESSOR WERNER MÜLLER

Dr. Werner Müller is Professor at the Institute for Physiological Chemistry at University Medical Center of the Johannes Gutenberg University Mainz, as well as President of the International Marine Biotechnology Association (IMBA). His research focuses on deep metazoan phylogeny in order to "reconstruct" and define the genetic repertoire of the Urmetazoa (ancestry of Metazoa), template-directed biomineralization processes, in particular biosilicification in marine and freshwater demosponges and, more recently, formation of the mineral skeletons of deep-sea glass sponges, but also other mineralization processes, and development of novel applications of the enzymes/proteins involved in natural polymer formation in biotechnology and biomedicine.

PROFESSOR YONATHAN (YONI) ZOHAR

Dr. Yonathan Zohar is Professor at the Institute of Marine and Environmental Technology, and Chair of the Department of Marine Biotechnology at the University of Maryland Baltimore County. The primary focus of his research is on basic and applied aspects of fish reproductive physiology and endocrinology. A major obstacle for the development and intensification of the finfish aquaculture industry is the failure of farmed fish to reproduce predictably when raised in captivity. He therefore uses endocrine, biochemical and molecular approaches to study interactions along the brain-pituitary-gonadal axis leading to reproductive development, gamete maturation, ovulation and spawning. His research models include commercially important farmed fish, such as striped bass and seabream, and the zebrafish. From his basic research, he develops technologies for the exogenous manipulation of fish reproduction, to be used in the aquaculture industry.

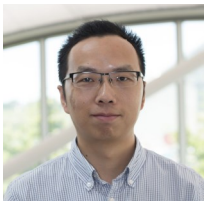
KEYNOTE SPEAKERS

Chung, J. Sook
Institute of Marine and Environmental Technology
Shellfish Genomics

Degnan, Sandie
University of Queensland
Marine Genomics, Metagenomics, and Metabolomics

Dooley, Helen
University of Aberdeen
Aquaculture: Disease and Immunity

Giovine, Marco
University of Genova
Marine Enzymes, Proteins, and Biomaterials



Li, Yantao
Institute of Marine and Environmental Technology
Marine Bioenergy and Algal Biofuels

McKenzie, Douglas
Xanthella
Biotechnology in Action: Commercialization

Msuya, Flower
University of Dar es Salaam
Climate Change, Environmental Stressors, and Marine Biotechnology

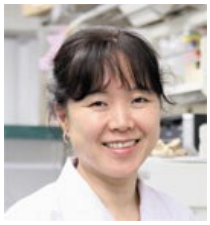
Place, Allen
Institute of Marine and Environmental Technology
Dinoflagellates and Biotechnology

KEYNOTE SPEAKERS

Qin, Song
Yantai Institute of Coastal Zone Research, Chinese Academy of Sciences
Marine Algal Omics and Biotechnology

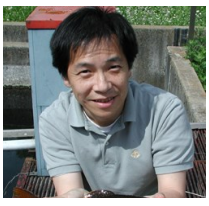
Sagi, Amir
Ben Gurion University
Sustainable Aquaculture: The Role of Biotechnology and Genomics

Stotish, Ronald
AquaBounty Technologies
GMOs in Aquaculture



Takeyama, Haruko
Waseda University
Marine Microbiology and Biotechnology

Tal, Yossi
Monterey Bay Labs
Marine Drugs, Bioactive Compounds and Nutraceuticals



Yoshizaki, Goro
Tokyo University of Marine Science and Technology
Reproductive Technologies in Aquaculture

Webster, Nicole
Australian Institute of Marine Science
Marine Symbioses

THANK YOU TO OUR SPONSORS

IMBC2016 Sponsors

- Institute of Marine and Environmental Technology
- AquaBounty Technologies
- Honda
- American Society for Microbiology
- Maryland Department of Commerce
- Marine Drugs
- Maryland Sea Grant
- University of Maryland Center for Environmental Science
- The Japanese Society of Fisheries Science
- University of Maryland Baltimore County
- National Institute of Standards and Technology

Institute of Marine and Enviromental Technology

The Institute of Marine and Environmental Technology (IMET) is home to one of the largest groups of scientists in the world addressing marine and environmental research through molecular approaches. Focusing on the sustainable use of natural resources and enhancement of human health, IMET is a joint University System of Maryland research institute capitalizing on the strengths of the University of Maryland Center for Environmental Science (UMCES), the University of Maryland Baltimore County (UMBC) and the University of Maryland Baltimore (UMB) in a state-of-the-art research facility located at Baltimore's Inner Harbor.

The scientists at IMET create technologies and processes designed to foster the protection and restoration of coastal marine systems and their watersheds, sustainable use of resources and improvement of human health.

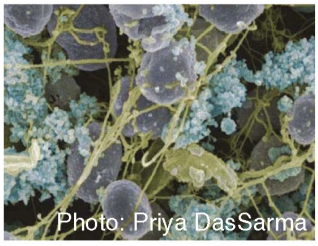


Photo: Priya DasSarma

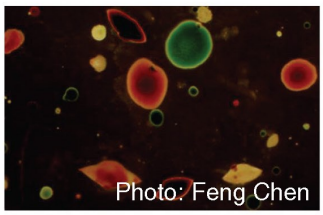


Photo: Feng Chen


Photo: Kevin Sowers

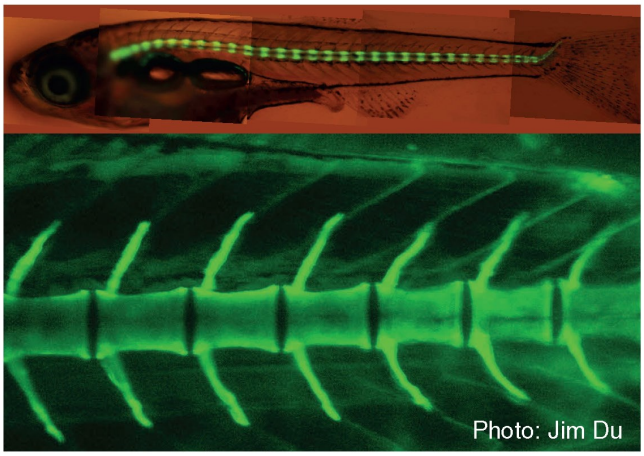


Photo: Jim Du

IMET's work includes the use of aquaculture and genomics to foster the conservation and creation of marine resources, including sustainable aquaculture and fisheries; environmental systems biology; biology of model systems and developmental biology; marine natural products and biomedicine; marine bioenergy; and extremophile biology and biotechnology.

IMET

Institute of Marine and Environmental Technology

www.imet.usmd.edu

TIMETABLE AND PROGRAM

OVERALL CONFERENCE TIMETABLE AND PROGRAM EXPLANATION

Please use the following color guide to help find the location of conference talks/events:

Constellation Ballroom	**2nd Floor Foyer**	**2nd Floor Atrium**
Columbia/Frederick Breakout—2nd Floor	**Annapolis/Baltimore Breakout—2nd Floor**	**Chesapeake A&B Breakout—3rd Floor**

TIME	MONDAY, 29TH AUGUST 2016
16:00	Registration
17:00	Welcome & Opening Remarks by Conference Director Russell Hill
17:10	James Brady, Chair of USM Board of Regents
17:20	Video Message by Rita Colwell
17:25	In Memoriam: The late Professor Shigetoh Miyachi. Remarks and moment of silence (Tadashi Matsunaga)
17:30	Opening Plenary: Yonathan Zohar, Marine Biotechnology for Sustainable Aquaculture (Chair: Karl Steiner)
18:30	Reception with live music, refreshments, and light food

TIME	TUESDAY, 30TH AUGUST 2016		
8:00	**Registration/Coffee/Continental Breakfast**		
8:30	**Plenary: Bernie Degnan. UNDERSTANDING, PROTECTING AND UTILIZING MARINE BIODIVERSITY THROUGH GENOMICS (Chair: Russell Hill)**		
9:15	**JST Symposium**	**Marine Genomics, Metagenomics and Metabolomics**	**Marine Drugs, Bioactive Compounds and Nutraceuticals**
	Conveners: Tadashi Matsunaga, Shin-ya Miyagishima, Yoshihiro Shiraiwa	**Chair: Vernon Coyne**	**Chair: Mark Hamann**
	Keynote: Matsunaga, Tadashi ACHIEVEMENT OF JST PROJECTON ALGAL BIOENERGY PRODUCTION	**Keynote: Degnan, Sandie GENOME-INFORMED INSIGHTS INTO THE FUNCTION OF A CORAL REEF SPONGE HOLOBIONT**	**Keynote: Tal, Yossi FROM SEA ANEMONE CULTIVATION TO TRANSDERMAL DRUG DELIVERY: USING THE STINGING CELLS OF *NEMATOSTELLA VECTENSIS* AS A MICROSCOPIC INJECTION PLATFORM**
9:45	**Bowler, Chris** GENOMICS-ENABLED EXPLORATION OF THE METABOLISM OF MARINE DIATOMS	**Aoki, Takashi** RELATIONSHIP BETWEEN ACUTE HEPATOPANCREAS NECROSIS DISEASE AND SHRIMP-ASSOCIATED BACTERIAL COMMUNITY	**Mari, Frank** EXPLORING THE PHARMACOPEIA OF THE VENOM OF CONE SNAILS THROUGH VENOMICS
10:05	**Read, Betsy** HAPTOFACTORY: OPPORTUNITIES AND CHALLENGES	**Deeds, Jonathan** THE USE OF FORENSIC MOLECULAR ANALYSES TO PREVENT SPECIES-SPECIFIC FOODBORNE ILLNESS AND DETECT SEAFOOD FRAUD IN THE UNITED STATES	**Kang, Nalae** MARINE-DERIVED BIOACTIVE COMPOUND REGULATES OBESITY THROUGH LEPTIN SIGNALING PATHWAY
10:25	**Coffee Break**		
10:55	**Shiraiwa, Yoshihiro** PRODUCTION OF TWO KINDS OF BIOFUEL AND BIOREFINERY CANDIDATES BY MARINE HAPTOPHYTES	**Xiang, Jianhai** GENOME SEQUENCING AND ANALYSIS OF SEA CUCUMBER (Apostichopus japonicus)	**Einarsson, Hjorleifur** BIOTECHNOLOGICAL POTENTIALS OF THRAUSTOCHYTRIDS ISOLATED FROM ICELANDIC COASTAL WATERS

11:15	**Miyagishima, Shin-ya** CREATION OF HEAT AND ACID TOLERANT ALGAE TOWARD HIGH BIOMASS PRODUCTION	**Liu, Xiaodan** IDENTIFICATION AND CHARACTERIZATION OF MICRORNAS IN SNAKEHEAD FISH CELL LINE UPON SNAKEHEAD FISH VESICULOVIRUS INFECTION	**Goodlett, David** DEVELOPMENT OF A LIPID A STRUCTURE ACTIVITY RELATIONSHIP LIBRARY
11:35	**Kanda, Hideki** ENERGY-SAVING EXTRACTION OF LIPIDS FROM WET MICROALGAE BY LOW-BOILING SOLVENT	**Schott, Eric** VIRUS DISCOVERY IN MARINE INVERTEBRATES USING GENOME VISUALIZATION	**Bahrami, Yadollah** PURIFICATION AND STRUCTURE CHARACTERIZATION OF NOVEL TRITERPENE GLYCOSIDES FROM THE SEA CUCUMBER THELENOTA ANANAS VISCERA
11:55	**Wijffels, Rene** INDUSTRIAL POTENTIAL OF MICROALGAE	**Marsan, David** SURVIVING IN A HIGHLY VARIABLE ENVIRONMENT - THE NOVEL TOXIN-ANTITOXIN SYSTEMS IN THE ESTUARINE SYNECHOCOCCUS STRAIN CB0101	**Cardozo, Flávio** N-ACETYL-GLUCOSAMINE PRODUCTION AND CHITINASE EXPRESSION EVALUATION BY Aeromonas caviae
12:15	JST Symposium Closing Discussion	Break	Break
12:30	**Lunch provided by conference**		
13:20	**JST Session**	**Marine Genomics, Metagenomics and Metabolomics (contd)**	**Marine Drugs, Bioactive Compounds and Nutraceuticals (contd)**
	Chairs: Yoshihiro Shiraiwa and Shin-ya Miyagishima	**Chair: Feng Chen**	**Chair: Werner Müller**
13:30	**Keynote: Tanaka, Tsuyoshi** BIOFUEL PRODUCTION BY MARINE DIATOMS: APPROACH BY GENETIC MANIPULATION	**Schock, Tracey** METABOLOMICS IN AQUACULTURE	**Hamann, Mark** ADVANCED SPECTROSCOPIC-COMPUTATIONAL TOOLS TO ASSIGN AND MONITOR HARMUL ALGAL BLOOM TOXINS
13:50	**Suzuki, Iwane** PRODUCTION OF THE CYCLOPROPANE FATTY ACIDS AND THE C16 UNSATURATED FATTY ACID IN THE CYANOBACTERIUM SYNECHOCYSTIS SP. PCC 6803	**Du, Shaojun** SYSTEMATIC KNOCKOUT OF MUSCLE SPECIFIC GENES IN ZEBRAFISH USING CRISPR/CAS9 TECHNOLOGY	**Jackson, Stephen** POTENT ANTIBACTERIAL FUNGI ISOLATED FROM A DEEP-SEA SPONGE

14:10	**Kashiyama, Yuichiro** MANAGING THE PHOTOTOXICITY OF CHLOROPHYLLS: A BASIC STUDY ON A KEY METABOLISM RESPONSIBLE FOR THE MASS CULTURE CRUSH	**Huang, Xiaoshuai** THE PUTATIVE INSULIN-LIKE PEPTIDE BINDING PROTEIN (ILPBP) FROM THE BLUE CRAB CALLINECTES SAPIDUS AND THE DEEP-SEA RED CRAB CHACEON QUINQUEDENS: A MULTIFUNCTIONAL FACTOR INVOLVED IN IMMUNITY, REPRODUCTION AND DEVELOPMENT	**Kim, Seo-Young** THE GROWTH ACTIVITY OF A SKELETAL MUSCLE FROM MARINE ALGA THROUGH THE REGULATION OF MYOGENESIS RELATED FACTORS IN C2C12 MYOBLASTS
14:30	**Nakashimada, Yutaka** GREEN PRODUCTION OF BIOFUELS, VALUABLE CHEMICALS AND METALS FROM MACROALGAE BY MARINE MICROORGANISMS	**Neely, Benjamin** MODERNIZING MARINE BIOCHEMICAL SCIENCES TO FACILITATE *OMIC MEASUREMENTS	**Ozeki, Yasuhiro** THE NOVEL STRUCTURE OF MYTILEC-1, A LECTIN WITH ANTI-CANCER CELL ACTIVITY IN THE MUSSEL, M. GALLOPROVINCIALIS
14:50	**Coffee Break**		
15:20	**Okada, Shigeru** BIOSYNTHESIS AND METABOLISM OF TRITERPENE HYDROCARBONS BY THE GREEN MICROALGA BOTRYOCOCCUS BRAUNII	**Oren, Matan** REDEFINING GENE DIVERSIFICATION DOGMAS: LESSONS FROM THE IMMUNE SYSTEM OF ECHINODERMS	**Kasanah, Noer** SEARCHING MARINE ACTINOBACTERIA ISOLATES FOR ANTI-VIBRIO ACTIVITY
15:40	**Atomi, Haruyuki** UNIQUE METABOLISM IN ARCHAEA AND ITS ENGINEERING		**Park, Gun-Hoo** EXTRACTION AND CHARACTERIZATION OF FUNCTIONAL POLYSACCHARIDE FROM ARTHROSPIRA (SPIRULINA) MAXIMA
16:00	**Break**		
16:20	**Poster Session with refreshments**		
18:00	**Break for the Day**		

TIME	WEDNESDAY, 31ST AUGUST 2016		
8:00	Registration/Coffee/Continental Breakfast		
8:30	Plenary: Werner Müller. INNOVATIVE MARINE BIOTECHNOLOGICAL SOLUTIONS FOR THE DEVELOPMENT OF REGENERATIVE IMPLANTS (Chair: Tadashi Matsunaga)		
9:15	Plenary: Qiang Hu. NEW OPPORTUNITIES FOR GROWING MICROALGAL INDUSTRY (Chair: Yantao Li)		
10:00	Coffee Break		
10:30	**Korean Society of Marine Biotech**	**GMOs in Aquaculture**	**Marine Algal Omics and Biotechnology**
	Chairs: You-Jin Jeon and Eon Seon Jin	**Chair: Yonathan Zohar**	**Chair: John van der Meer**
	Keynote: Kim, Se-Kwon **PERSPECTIVE ON THE PHARMACEUTICALS AND NUTRACEUTICALS DEVELOPMENT FROM MARINE BIO RESOURCES IN SOUTH KOREA**	**Keynote: Stotish, Ronald** **AQUADVANTAGE® SALMON: A PIONEERING APPLICATION**	**Keynote: Qin, Song** **COPE WITH BIG HEALTHY INDUSTRY, FUSION WITH LARGE AQUATIC INDUSTRY: ALGAL BIOTECHNOLOGY IS MEETING NEW NEEDS**
11:00	**Jin, EonSeon** AN INTRACELLULAR ANTIFREEZE PROTEIN FROM AN ANTARCTIC MARINE MICROALGA AND ITS APPLICATIONS	**Chen, Thomas** PRODUCTION OF DISEASE RESISTANT FISH BY TRANSG ENESIS AND ITS APPLICATION IN AQUACULTURE	**Coyne, Vernon** INVESTIGATION OF THE GRACILARIA GRACILIS PROTEOME RESPONSE TO NITROGEN LIMITATION
11:20	**Kang, Do-Hyung** DEVELOPMENT ON MULTIPURPOSE FUTURE RESOURCES USING CYANOBACTERIA	**Gong, Hong-Yi** DEVELOPMENT OF NOVEL TRANSGENIC PINK ANGELFISH AND TRANSGENIC TILAPIA AS A BIOREACTOR BY A ZEBRAFISH MUSCLE-SPECIFIC PROMOTER/ ENHANCER	**Bowers, Holly** THE PERFECT WEST COAST TOXIC ALGAL STORM
11:40	**Kim, Sung-Koo** EFFECT OF LIGHT-EMITTING DIODES (LEDs) ON THE ACCUMULATION OF LIPID CONTENT USING A TWO-PHASE CULTURE PROCESS WITH MICROALGAE	**Van Eenennaam, Alison** GENE EDITING: BREEDING OR GMO?	**Liu, Feng** COMPARATIVE GENOMICS OF CHLOROPLASTS AND MITOCHONDRIA IN BROWN ALGAE

12:00	**Kim, Eun-A** ANTI-CANCER EFFECT OF SARIN-GOSTEROL ACETATE ISOLATED FROM IN ZEBRAFISH MODEL	**Harrell, Reginal** BIOETHICAL CONSIDERATIONS OF ADVANCING THE APPLICA-TION OF MARINE BIOTECH-NOLOGY AND AQUACULTURE	**Mori, Tetsuchi** MINING NOVEL ALGINATE LYASES FROM METAGENOME LIBRARIES FOR ALGINATE DEPOLYMERIZATION
12:20	**Heo, Soo-Jin** POTENTIAL MODULATION OF CANCER PROGRESSION BY MARINE ORGANISM-DERIVED COMPOUNDS	**Buchanan, John** BROODSTOCK SELECTION FOR IMPROVED PERFORMANCE IN GENETICALLY ENGINEERED FISH	**Lomas, Michael** MAINE ALGAL RESEARCH AND INNOVATION ACCELERATOR (MARIA): A PILOT-SCALE RESEACH AND DEVELOPMENT RESOURCE
12:40	**Ginnae Ahn** BENEFICIAL EFFECTS OF DIECKOL DERIVED FROM ECKLONIA CAVA ON TYPE I ALLERGIC REACTION AND ITS BIOLOGICAL MECHANISM	**Dunham, Rex** REPRESSIBLE TRANSGENIC STERILIZATION IN CHANNEL CATFISH, ICTALURUS PUNCTATUS, BY KNOCKDOWN OF PRIMORDIDAL GERM CELL GENES FOR CONTAINMENT OF GENETICALLY ENGINEERED CATFISH	
13:00	**Lunch provided by conference**		
14:00	**Dinoflagellates and Biotechnology**	**Sustainable Aquaculture: The Role of Biotechnology and Genomics**	**Marine Bioenergy and Environ-mental Marine Biotechnology**
	Chairs: Allen Place and Rosemary Jagus	**Chair: Jianhai Xiang**	**Chair: Song Qin**
	Keynote: Place, Allen **THE MAGICAL MYSTERY TOUR THAT IS DINOFLAGELLATE POLYKETIDE BIOSYNTHESIS**	**Keynote: Sagi, Amir** **BIOTECHNOLOGIES FOR MON-OSEX CULTURE OF PRAWNS**	**Keynote: Li, Yantao** **FIT OR FAT: THE MOLECULAR MECHANISM AND BIOENERGY IMPLICATIONS OF TRIACYL-GLYCEROL BIOSYNTHESIS IN MICROALGAE**
14:30	**Fernández-Robledo, José A.** TRANSFECTION STRATEGIES IN MARINE MICROEUKARYOTES	**Macey, Brett** ULVA AS A FUNCTIONAL INGREDIENT IN AQUAFEEDS	**Takamatsu, Shouhei** CONTINUOUS OPERATION OF BIOPROCESS USING PHOTOBIOREACTOR
14:50	**Wang, Da-Zhi** MARINE DINOFLAGELLATE PROTEOMICS: CURRENT STATUS AND FUTURE PERSPECTIVES	**Cyrus, Mark** THE USE OF STABLE δ 13C AND δ 15N ISOTOPES TO TRACK THE INCORPORATION OF ULVA AND OTHER IMPORTANT DIETARY INGREDIENTS INTO SEA URCHIN GONADS	**Rorrer, Gregory** BIOPROCESSING STRATEGIES FOR ENHANCED PRODUCTION OF BIOFUELS AND AMINE BIOPOLYMERS FROM DIATOM MICROALGAE

15:10	**Zhang, Hao** METAPROTEOMICS REVEALS METABOLIC ACTIVITIES BETWEEN THE BLOOMING AND NON-BLOOMING SAMPLES OF PROROCENTRUM DON-GHAIENSE COLLECTED FROM THE COASTAL EAST CHINA SEA	**Ahmed, Onada Olawale** IMPROVING FOOD SECURITY IN AN ECO-FRIENDLY MANNER THROUGH INTEGRATED AQUACULTURE	**Fucich, Daniel** CHICKEN MANURE AS A SOURCE FOR ALGAL NUTRIENT AND CLEAN ENERGY
15:30	**Coffee Break**		
15:50	**Jagus, Rosemary** DINOFLAGELLATES ARE DIFFER-ENT: NOVEL MRNA CAPS AND NOVEL EIF4ES IN AMPHIDINIUM CARTERAE	**Maurer, Leah** EFFECTS OF PREY DENSITIES AND DIETARY SUPPLEMENTA-TION ON THE EARLY DEVELOP-MENT OF THE BLUE CRAB, Callinectes sapidus	**Lee, Youngdeuk** HIGHLY POTENT SACCHARIFICA-TION OF ARTHROSPIRA MAXI-MA GLYCOGEN BY FUNGAL AMYLOLYTIC ENZYME FROM TRICHODERMA SPECIES J113
16:10	**Haq, Saddef** ACETYL-COA CARBOXYLASES IN DINOFLAGELLATES: FUELING THE POLYKETIDE SYNTHASE PATHWAYS	**Liu, Chieh-Lun** EFFECTS OF A TAURINE SUPPLEMENTATION ON CELL GROWTH, AMINO ACID POOLS AND EXPRESSION OF THE TAURINE BIOSYNTHETIC PATHWAY AND REPORTER GENES IN A FISH CEL LINE (ZFL)	**Laufer, Hans** LONG ISLAND SOUND LARVAL LOBSTERS ARE AFFECTED BY ENDOCRINE DISRUPTING POLLUNTANT ALKYLPHENOLS
16:30	**Bachvaroff, Tsvetan** PATCHING THE QUILT: EVOLUTIONARY HISTORY OF SYNTHETIC PATHWAYS IN DINOFLAGELLATES	**Yang, Hongsheng** STUDIES ON BIOLOGY AND AQUACULTURE OF SEA CUCUMBER APOSTICHOPUS JAPONICUS IN CHINA	**So, Christopher** CEMENT PROTEOMICS: SHARED TRAITS AND CONSERVED CHEMISTRIES IN BARNACLE CEMENT PROTEINS FROM Balanus amphitrite
16:50	**Smith, Susan** THE HV1 PROTON CHANNEL OF LINGULODINIUM POLYEDRUM LOCALIZES TO THE BIOLUMINESCENT SCINTILLON		
17:10	**2nd Poster Session**		
18:30	**Break for the Day**		

TIME	THURSDAY, 1ST SEPTEMBER 2016	
8:00	**Registration/Coffee/Continental Breakfast**	
8:30	**Plenary: Paul Falkowski. DISSECTING THE PROMISES AND FAILURES OF BIOTECHNOLOGY TO PRODUCE ALGAL BIOFUELS AT A SCALE NECESSARY DISRUPT GLOBAL DEMAND FOR FOSSIL FUELS (Chair: Hanzhi Lin)**	
9:15	**Plenary: Tadashi Maruyama. DEEP-SEA SYMBIOSES AND POSSIBILITY OF SYMBIOSIS ENGINEERING (Chair: Werner Müller)**	
10:00	**Coffee Break**	
10:30	**Biotechnology in Action: Commercialization**	**Climate Change, Environmental Stressors and Marine Biotechnology**
	Chair: Nick Hammond	**Chair: Madhavi Indap**
	Keynote: McKenzie, Douglas **ALGAE AS AN ECONOMIC DRIVER IN REMOTE RURAL AREAS: A SCOTTISH PERSPECTIVE**	**Keynote: Msuya, Flower** **IMPACT OF CLIMATE CHANGE ON SEAWEED FARMING AND MITIGATION OPTIONS EMPLOYED IN TANZANIA**
11:00	**Arad, Shoshana** THE BIOTECHNOLOGY OF RED MICROALGAE: FROM IDEAS TO PRODUCTS	**Lin, Hanzhi** THE FATE OF PHOTONS ABSORBED BY PHYTOPLANKTON IN THE GLOBAL OCEAN
11:20	**Sato, Shunsuke** ENVIRONMENT COMPATIBLE KANEKA BIOPOLYMER AONILEX®	**Yasumoto, Ko** MECHANISMS UNDERLYING CARBON DIOXIDE FIXATION
11:40	**D'Ambrosio, Lindsay** CO-LOCATION OF STARTUPS AND SCIENTIFIC RESEARCHERS – DO'S, DON'TS, UPS, AND DOWNS VIA HARBOR LAUNCH, IMET'S STARTUP INCUBATOR	**Zhao, Jin** HAVE THE FLOATING ULVA PROLIFERA IN THE YELLOW SEA SETTLED DOWN ALONG QINGDAO COASTAL AREA AFTER EIGHT-YEAR BLOOMING?

12:00	**Ron, Tetsuzan Benny** COI GENE SEQUENCE METHOD HELPS AQUACULTURE FARMERS AND THEIR CUSTOMERS		**Daud, Pahlano** SCLERACTINIAN CORAL ASSEMBLAGES ON ARTIFICIAL REEF 'A-REEFBLOCK': POTENTIAL AND PROCESSES
12:20	**Hammond, Nicholas** FOSTERING INNOVATION: BUILDING AN INNOVATION NEXUS AT THE INSTITUTE OF MARINE AND ENVIRONMENTAL TECHNOLOGY		**Shore-Maggio, Amanda** INFLUENCE OF SALINITY AND SEDIMENT LOADING ON VIBRIO INFECTION OF THE HAWAIIAN CORAL, MONTIPORA CAPITATA
12:40	**Lunch on your own**		
13:40	**Marine Microbiology and Biotechnology**	**Shellfish Genomics**	**Aquaculture: Disease and Immunity**
	Chair: Joy Watts	**Chair: Sook Chung**	**Chair: Shoshana Arad**
	Keynote: Takeyama, Haruko **MICROBIOME ANALYSIS: CHALLENGES IN SINGLE CELL TECHNOLOGY**	**Keynote: Chung, Sook** **CRUSTACEAN FEMALE SEX HORMONE AND ITS FUNCTION IN DEVELOPING ADULT FEMALE-SPECIFIC CHARACTERISTICS IN THE BLUE CRAB, Callinectes sapidus**	**Keynote: Dooley, Helen** **DEVELOPMENT OF A PROTEOMIC PLATFORM TO FACILITATE THE GENERATION OF NEW AND IMPROVED AQUACULTURE VACCINES**
14:10	**Chen, Feng** NICHE ADAPTATION OF PICOCYANOBACTERIA IN THE CHESAPEAKE BAY - FROM ECOLOGY, PHYSIOLOGY TO OMICS	**Zhang, Xiaojun** COMPLEX GENOME SEQUENCING OF THE PACIFIC WHITE SHRIMP, Litopenaeus vannamei	**Feng, Chiguang** GALECTINS FROM THE EASTERN OYSTER (CRASSOSTREA VIRGINICA) PREFERENTIALLY RECOGNIZE THE PROTOZOAN PERKINSUS MARINUS BY CARBOHYDRATE-BASED PARASITE MIMICRY
14:30	**Robb, Frank** A MARINE HYPERTHERMOPHILE PROTEIN CHAPERONE MODEL OF A PATHOGENIC HUMAN MUTATION	**Shi, Hong** PROFILING OF DIFFERENTIALLY EXPRESSED GENES IN TWO STRAINS OF SHRIMPS (LITOPENAEUS VANNAMEI) RESPONSE TO WHITE SPOT SYNDROME VIRUS	**Xiao, Jingfan** DEVELOPMENT OF A LIVE ATTENUATED VACCINE AGAINST THE FISH PATHOGEN EDWARDSIELLA PISCICIDA IN TURBOT

14:50	**Oh, Chulhong** MARINE BACTERIA RESEARCH IN CHUUK STATE, MICRONESIA	**Yuan, Jianbo** CONVERGENT EVOLUTION OF THE OSMOREGULATION SYSTEM IN DECAPOD SHRIMPS	**Tasumi, Satoshi** OPTIMIZATION OF INSECT CELL SURFACE DISPLAY PLATFORM FOR CHARACTERIZATION OF FISH IMMUNE-RELATED MEMBRANE PROTEINS
15:10	**Coffee Break**		
15:30	**Sowers, Kevin** CHARACTERIZATION OF A MICROBIAL CONSORTIUM THAT EFFICIENTLY CONVERTS MARICULTURE FISH WASTE TO BIOMETHANE	**Green, Shadaesha** REPRODUCTIVE ENDOCRINOLOGY OF THE DEEP -SEA RED CRAB, CHACEON	**Burge, Colleen** CHARACTERIZATION OF XENO-HALITIS PHAGE ATTENUATUM, A MARINE BACTERIOPHAGE ASSOCIATED WITH THE ATTENUATION OF ABALONE WITHERING SYNDROME
15:50	**Xi, Chuanwu** EXPLORING METABOLITES OF MARINE MICROORGANISMS FOR BIOFILM CONTROL	**Song, Hao** METAMORPHOSIS OF THE VEINED RAPA WHELK Rapana venosa: FROM MORPHOLOGI-CAL, TRANSCRIPTOMIC AND PROTEOMIC INSIGHT	**Abernathy, Kelsey** EXTRACELLULAR TANDEM-REPEAT GALECTIN (DRGAL9-L1) FROM ZEBRAFISH PROMOTES ADHESION AND INFECTION OF THE INFECTIOUS HEMATOPOI-ETIC NECROSIS
16:10	**Zhan, Yuanchao** PHAGE ISOLATION CONTINUES TO SURPRISE US- A NOVEL PHAGE INFECTING MARINE RO-SEOBACTER	**Bae, Sun-Hye** DOES A FEMALE HORMONE REGULATE THE LEVELS OF A MALE SEX HORMONE IN CRUSTACEANS?	**Larkin, Mary** DEVELOPMENT OF A DIETARY TAURINE-DEPENDENT ZEBRAFISH
16:30	**Payne, Rayford** IN SITU TREATMENT OF PCB-IMPACTED SEDIMENTS BY BIOAUGMENTATION		
16:50	**Break**		
18:00	**Conference Banquet**		

TIME	FRIDAY, 2ND SEPTEMBER 2016		
8:00	Registration/Coffee/Continental Breakfast		
8:30	**Marine Enzymes, Proteins and Biomaterials**	**Marine Symbioses**	**Reproductive Technologies in Aquaculture**
	Chair: Se-Kwon Kim	**Chair: Russell Hill**	**Chair: Rex Dunham**
	Keynote: Giovine, Marco **MARINE SPONGES: A PRECIOUS SOURCE OF NEW BIOMATERIALS FOR BIOTECHNOLOGY**	**Keynote: Webster, Nicole** **SPONGE SYMBIOMICS-SYMBIOSIS INSIGHTS DERIVED FROM A BASAL METAZOA**	**Keynote: Yoshizaki, Goro** **REPEATED PRODUCTION OF SEMELPAROUS CHINOOK SALOMON GAMETES USING SURROGATE RAINBOW TROUT**
9:00	**Inoue, Akira** CHARACTERIZATION OF HEAT-STABLE ALGINATE LYASE FROM A BACTERIUM THRIVING AT DEEP-SEA HYDROTHERMAL VENTS	**Vicente, Jan** MUTUALISM BETWEEN SPONGES OF THE GENERA PLAKORTIS AND XESTOSPONGIA: A STEADY RELATIONSHIP IN THE FACE OF CLIMATE CHANGE	**Wong, Ten-Tsao** DEVELOPING AN INDUCIBLE STERILIZATION TECHNOLOGY TO CONTAIN GENETICALLY MODIFIED FISH
9:20	**Kreuter, Lydia** PURIFICATION OF A CRENARCHAEAL ATP SYNTHASE IN THE LIGHT OF THE UNIQUE BIOENERGETIC SITUATION IN IGNICOCCUS SPECIES	**Borchert, Eric** DIVERSITY OF NATURAL BIOSYNTHETIC GENES IN DEEP SEA SPONGES	**Levy, Tom** A SINGLE INJECTION OF HYPERTROPHIED ANDROGENIC GLAND CELLS PRODUCES ALL-FEMALE AQUACULTURE
9:40	**Le Gouic, Aurélien** DETERMINATION OF THE ANTIOXIDANT PROPERTIES OF PROTEIN HYDROLYSATES FROM ATLANTIC BOARFISH (CAPROS APER) AND BLUE WHITING (MICROMESISTIUS POUTASSOU)	**Waterworth, Samantha** EVIDENCE FOR VERTICAL TRANSMISSION OF BACTERIAL SYMBIONTS IN SOUTH AFRICAN TETHYA SPONGES	**Zmora, Nilli** USING NEUROPEPTIDE-ANTAGONISTS FOR THE MANIPULATION OF REPRODUCTION IN FISH
10:00	**Han, Eui Jeong** PROTECTIVE EFFECTS OF LOLIOLUS BEKA MEAT AGAINST OXIDATIVE STRESS IN CULTURED HEPATOCYTES AND ZEBRAFISH EMBRYO MODEL	**Naughton, Lynn** GENOME MINING OF MARINE SPONGE-ASSOCIATED PSEUDOVIBRIO ISOLATES: UNLOCKING THE BIOACTIVE POTENTIAL OF MARINE MICROORGANISMS	**Marvel, Miranda** EXAMINING THE FUNCTIONAL ROLES OF GONADOTROPIN-RELEASING HORMONE II (GNRH2) IN FEEDING AND REPRODUCTION: INSIGHTS FROM THE ZEBRAFISH MODE

10:20	**Park, Soo Yeon** PURIFICATION, ANTIOXIDANT, AND HEPATOPROTECTIVE EFFECTS OF PEPTIDE FROM KRILL PROTEIN HYDROLYSATES	**McDonald, Ryan** CHARACTERIZATION OF THE ENTERIC MICROBIOME OF THE WOOD-EATING CATFISH Panaque nigrolineatus	**Chan, Siuming** SEX DETERMINATION GENE EXPRESSION FROM THE SPERMATOPHORE OF THE BANANA SHRIMP Ferrenopenaeus merguiensis
10:40	**Siordia, Ivan Rodriguez** EFFECT OF CHEMICAL AND PRO-TEOLYTIC ADDITIVES ON THE STABILITY OF THE CATHEPSIN D1 FROM AMERICAN LOBSTER (Homarus americanus)	**Zheng, Ping** ADAPTATION STRATEGY OF BATHYMODIOLUS PLATIFRONS IN THE COLD SEEP ECOSYS-TEMS REVEALED BY COMPARA-TIVE TRANSCRIPTOMICS	**Amezawa, Kotaro** ORAL ADMINISTRATION OF CELL-PENETRATING PEPTIDE-CONJUGATED GNRH ANA-LOGUE EFFICIENTLY INDUCES
11:00	**Coffee Break**		
11:30	**Closing Ceremony and Announcement of Next IMBC Venue**		

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