

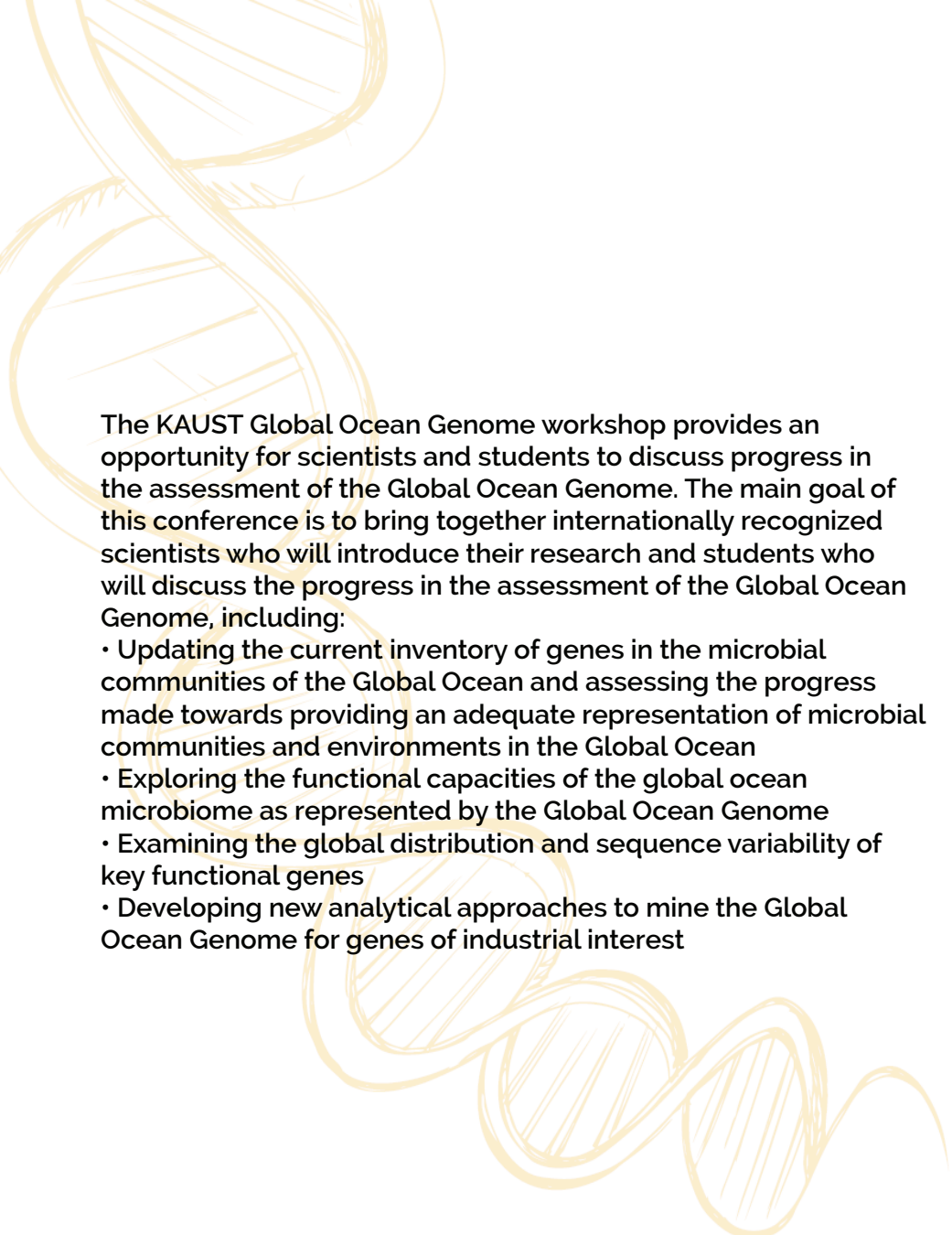


# KAUST GLOBAL OCEAN GENOME

## AGENDA

Level 0 Auditorium  
between buildings 2 & 3

**Oct. 29 - Nov. 01  
2017**



The KAUST Global Ocean Genome workshop provides an opportunity for scientists and students to discuss progress in the assessment of the Global Ocean Genome. The main goal of this conference is to bring together internationally recognized scientists who will introduce their research and students who will discuss the progress in the assessment of the Global Ocean Genome, including:

- Updating the current inventory of genes in the microbial communities of the Global Ocean and assessing the progress made towards providing an adequate representation of microbial communities and environments in the Global Ocean
- Exploring the functional capacities of the global ocean microbiome as represented by the Global Ocean Genome
- Examining the global distribution and sequence variability of key functional genes
- Developing new analytical approaches to mine the Global Ocean Genome for genes of industrial interest

# Sunday 29 October

level 0 Auditorium between Buildings 2 and 3

- 8:30 -8:40**      **Welcome address**  
Pierre Magistretti, Dean, Biological and Environmental Sciences and Engineering Division, KAUST
- 8:40 -8:45**      **House keeping notes and review of workshop goals**  
Workshop Chair, Carlos M. Duarte, RSRC & CBRC, KAUST
- 8:45 – 12:15**    **Session 1. Exploration of the global ocean genome**  
Chair Chris Bowler, ENS, Paris
- 8:45- 9:15**      **Keynote lecture: Disclosing the deep ocean microbiome**  
Silvia Acinas, ICM, CSIC, Spain
- 9:15 - 9:35**      **Power law distribution of marine OTUs: Implications for the richness of ocean microbes**  
Victor M. Eguiluz, KAUST & IFISC, Spain
- 9:35 - 9:55**      **The Tara Oceans microbial reference gene catalog**  
Guillem Salazar, ETHZ, Switzerland
- 9:55 - 10:15**    **Mesopelagic gene and microbial species enrichment across the global tropical and subtropical ocean**  
Pablo Sanchez, ICM, CSIC, Spain
- 10:15 -10:45**    **Coffee break**
- 10:45 - 11:15**   **Keynote lecture: Comparative marine metagenomics in the global ocean project**  
Takashi Gojobori, BESE, KAUST

- 11:15 – 11:35**    **Sequencing effort dictates gene discovery in ocean microbial metagenomes**  
Carlos M. Duarte, RSRC & CBRC, KAUST
- 11:35 – 11:55**    **High-throughput sequencing the global ocean eukaryotic plankton: promises and challenges**  
Naiara Rodriguez, AZTI, Spain
- 11:55 - 12:15**    **Evidence of different community structuring patterns in eukaryotic vs. prokaryotic picoplankton inhabiting the sunlit global ocean**  
Ramiro Logares, ICM, CSIC, Spain
- 12:15 - 13:45**    **Lunch (campus diner, building 13)**
- 13:45**            **Session 1 (cont). Exploration of the global ocean genome**
- 13:45 – 14:05**    **Curation of samples from the microbial group of MALASPINA (harmonisation of metadata, QA/QC and submission to EBI/ENA).**  
Stephane Pesant, Marum, Germany
- 14:05 - 14:25**    **Metagenomic analyses using Dragon Metagenomic Analysis Platform (DMAP)**  
Intikhab Alam, CBRC, KAUST
- 14:25 – 14:45**    **Seasonal dynamics of the Red Sea metagenomics**  
Katsuhiko Mineta, CBRC, KAUST

**14:45 – 15:15**    **Coffee break**

**15:15**            **Session 2. Metatranscriptomics**

Chair Silvia Acinas, ICM, CSIC, Spain

**15:15- 15:45**    **Keynote Lecture: Exploration of Tara Oceans metatranscriptomics data**

Chris Bowler, ENS, Paris

**15:45 – 16:05**    **Changes on a Synechococcus population during a mesocosm experiment on the Red Sea**

Alexia Coello, RSRC, KAUST

**16:05 – 16:25**    **Widespread distribution of salvage pathways in oceanic microbes: implications for autotrophs**

David Ngugi, RSRC, KAUST

**16:25 – 16:45**    **EMOSE (2017) inter-comparison of marine plankton 'Omics methods (filtration, sequencing and analysis pipelines)**

Stephane Pesant, Marum, Germany

**16:45 - 17:05**    **Elucidating the genome of a deep sea fungus**

Ramiro Logares, ICM, CSIC, Spain

**END OF SESSION**

**19:30**            **Workshop dinner: Al Marsa Restaurant, Yacht Club**

# Monday 30 October

level 0 Auditorium between Buildings 2 and 3

**9:00**

## **Session 3. The ocean virome**

Takashi Gojobori, BESE, KAUST

**9:00 – 9:30**

### **Keynote Lecture: vignettes of virus variation in the oceans**

Curtis Suttle, UBC, Canada

**9:30 – 9:50**

### **Ecogenomics of deep sea viral communities**

Elena Lara, Istituto di Scienze Marine, Venice, Italy  
(presented by Carlos Duarte)

**9:50 – 10:10**

### **RNA viruses: The underestimated entities in the marine environment**

Marli Vlok, UBC, Canada

**10:10 – 10:30**

### **Out of the blue: atmospheric inputs to the global ocean genome**

Nojood Aalismail, RSRC, KAUST

**10:30 – 11:00**

### **Coffee break**

**11:00**

## **Session 4. Applications of the open ocean genome**

**11:00 – 11:30**

### **Keynote Lecture: Global trends in the use of marine genetic resources**

Txetxu Arrieta, IEO, Spain

**11:30 – 11:50**

### **Global diversity of marine animals based on metagenomes**

Nathan Gerald, RSRC, KAUST

**11:50 – 12:10**

### **Marine macrophytes exportation to the deep ocean A metagenomic approach**

Alejandra Ortega, RSRC, KAUST

**12:10 – 13:30**

### **Lunch (campus diner, building 13)**

- 13:30**                    **Session 5. Top, & bottom boundaries and computational issues**  
Session Chair, Vlad Bajic, Director CBRC, KAUST
- 13:30 – 14:00**    **Keynote lecture: Microbial community assembly and evolution in subseafloor sediment**  
Kasper Kjeldsen, Aarhus University, Denmark
- 14:00 – 14:20**    **Computational resources at KAUST**  
Saber Feki, KSL, KAUST and Greg Wickham, ACI, KAUST
- 14:20 – 14:40**    **Multi-omics approach to assess viral impact on marine plankton**  
Hiroyuki Ogata, Kyoto, Japan
- 14:40 – 15:10**    **The extreme gene and metabolic process repertoires of prokaryotes inhabiting the deep sea hypersaline anoxic basins.**  
Daniele Daffonchio, BESE, KAUST
- 15:10 – 15:40**    **Coffee break**
- 15:40 – 16:00**    **Diazotroph dynamics in tropical and subtropical oceans**  
Roslinda Mohammed, RSRC, KAUST
- 16:00 – 16:40**    **Proposal for working groups (Oct 31<sup>st</sup> – Nov 1<sup>st</sup>)**
- 16:40 – 17:40**    **Parallel demonstrations**
- Single Cell Sorting and Genomics Platform  
Takashi Gojobori, BESE, KAUST
  - DMAP Hands on Demonstration  
Intikhab Alam, CBRC, KAUST
  - Tour to the BIO Core Lab Facilities  
Abdallah M. Abdallah, Bioscience Core Lab, KAUST
- 19:30**                    **END OF SESSION**  
**Dinner at Thuwal Traditional Fish Restaurant**  
(this is outside KAUST, so you need to bring the KAUST ID card, passport, and appropriate clothing).

# Tuesday 31 October

**8:45 – 13:00** Informal conversation snorkeling trip to Red Sea coral reefs (breakfast and lunch provided - only for registered participants)

**13:00 – 14:00** Prepare for writing sessions

**14:00 – 18:00** Writing session 1

Rooms available:

3318, campus library sea view (24 seats)

2286, building 2, open area (12 seats)

2290, building 2, open area (16 seats)

## Writing Groups

1. Resources and infrastructure for advancing the exploration of the Global Ocean genome (what are the bottle necks, how can the community organize themselves to overcome these?)
2. Best practices in the assemblage and analyses of Ocean Metagenome Data (we have been exploring how different choices impact on the outcome, and these are quite considerable, other metagenomic communities, eg. Human micro biome, are developing benchmarks and standards to test procedures, which is something we seem to be lacking).
3. Advancing the Exploration of the Global Ocean Genome (where do we stand?, what are the key research questions, challenges and opportunities?).

## END OF SESSION

**19:30**

**Dinner: PURE restaurant (Island Recreational Club)**



# Wednesday 1 November

**9:00 – 10:00** Report to the plenary on progress by writing groups

**10:00 – 12:30** Writing Session 2

Rooms available:

3318, campus library sea view (24 seats)

2286, building 2, open area (12 seats)

2290, building 2, open area (16 seats)

**12:30 – 13:30** Lunch (Campus diner, building 13)

**13:30 – 16:00** Writing Session 3

Rooms available:

3318, campus library sea view (24 seats)

2286, building 2, open area (12 seats)

2290, building 2, open area (16 seats)

**16:00 – 17:00** Report to the plenary on progress by writing groups

**17:00 – 17:30** Action items and closing

Carlos M. Duarte, KAUST, workshop chair

# Participants

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