

Workshop on

Marine dissolved organic matter and heterotrophic bacteria: from bulk measurements to molecular analyses

organized by Ingrid Obernosterer and Philippe Lebaron
in Banyuls-sur-Mer, October 22nd-23rd 2007

The objective of this workshop is to promote discussion on the linkages and interactions between dissolved organic matter and heterotrophic bacteria in view of the recent progress made in (bio)molecular approaches.

Heterotrophic bacteria are key players in the oceanic carbon cycle through the transformation and mineralization of marine dissolved organic matter (DOM), one of the largest reactive carbon reservoirs on Earth. The significance of DOM in supporting the carbon and energy flow within microbial food webs is now widely recognized in biological oceanography. Novel (bio)molecular based techniques have given insight to bulk measurements, advancing our understanding on DOM cycling by heterotrophic bacteria. The progress made in analytical chemistry has provided a more detailed molecular characterization of marine DOM, in particular the identification of specific compound classes that are biochemical indicators of overall DOM bioreactivity. Concurrently, molecular taxonomy has revealed a large phylogenetic diversity of natural bacterial populations. Combined with single-cell analysis these latter developments enable the identification of the major bacterial groups that contribute to the cycling of specific DOM compounds. The extraordinary advances in genomic DNA studies provide detailed insight into the potential metabolic capabilities of natural bacterial communities or bacterial strains, offering new challenges for the classical culture-dependent approaches.

Workshop Program

Monday, Oct 22nd 2007

14:00h-14:10h: Welcome

14:10h-15:00h: **Ron Benner** (Univ. of South Carolina, Columbia): Molecular characterization and bioreactivity of DOM

15:00h-15:50h: **David Kirchman** (College of Marine and Earth Studies, Delaware) :
Contribution of major bacterial groups to organic carbon fluxes

15:50h-16:15h: Coffee Break

Two Case Studies

16:15h-16:50h: **Nyree West** (Observatoire Océanologique, Banyuls): Major differences of bacterial diversity and activity inside and outside of a natural iron-fertilized phytoplankton bloom in the Southern Ocean

16:50h-17:30h: **Michal Koblizek** (Institute of Microbiology CAS, Trebon): Contribution of Aerobic Anoxygenic Phototrophs to the DOM cycling in the ocean

Snapshots

17:30-17:45h: **Dominique Léfèvre** (LMGEM, Marseille): An *in situ* sampler for oxygen consumption in the water column

17:45h-18:00h: **Evaristo Vazquez-Dominguez** (Institut de Ciències del Mar-CMIMA, CSIC, Barcelona): Bacterial growth efficiency: Could there be a circadian cycle out there?

18:00h-18:15h: **Raphael Lami** (UPMCVI, Laboratoire Arago): Importance of Aerobic Anoxygenic Phototrophic Bacteria in the South Pacific Ocean

18:15h-18:30h: **Christian Tamburini** (LMGEM, Marseille): Utilization of organic matter in the meso-and bathypelagic ocean

18:30h-18:45h: **Elvira Pulido-Villena** (Laboratoire d'Océanographie de Villefranche): Saharan dust enhances bacterial mineralization of DOM in the oligotrophic western Mediterranean

18:45h-19:00h: **Asma Trabelsi** (Laboratoire d'Océanographie de Villefranche): Seasonal variation of DOC rates in response to changing bacterial dynamics in Villefranche Bay

19:00h-19:15h: **Dominique Lamy** (Université du Littoral Côte d'Opal, Wimereux): Seasonal changes in bacterial abundance, activity and community composition in the eastern English Channel :a case study during a *Phaeocystis globosa* bloom

19:00h-19:30h: **Richard Sempéré** (LMGEM, Marseille): Molecular distribution of dicarboxylic acids and related polar compounds in the Rhone River and coastal Mediterranean waters in relation with photochemical reactions.

19:30h: Dinner at the Restaurant of the Laboratoire Arago

Tuesday Oct.23rd 2007

9:00h-9:50h: **Josep M Gasol** (Institut de Ciències del Mar-CMIMA, CSIC, Barcelona): Use of single-cell analysis techniques to link biogeochemical cycling and bacterial diversity in a coastal planktonic community (Blanes Bay Microbial Observatory-NW Med): do we know who's an important player?

9:50h-10:40h: **Matthew Cottrell** (College of Marine and Earth Studies, Delaware): Insights into Marine Microbes revealed by Metagenomics

10:40h-11:00h: Coffee Break

11:00h-11:50h: **Philippe Lebaron** (UPMC VI, Observatoire Océanologique, Banyuls): Metabolism of bacterial strains: a culturing approach

11:50h-12:45h: Final round table: Open discussion on synthesis and perspectives

Call for contributions

Besides the speakers that we have invited to this workshop, we offer space for 5-10 short presentations (*Snapshots*, each presentation is restricted to 5 slides and 5-10 min discussion); first come first serve!

We would like to dedicate as much time as possible for open discussion during this workshop. For this reason we will set an upper limit of 40 participants. Please send an e-mail to ingrid.obernosterer@obs-banyuls.fr if you are interested in participating.

Logistics

All workshop participants are invited to the aperitif and dinner on Monday evening in the Restaurant of the Laboratoire Arago. For this reason, we need your participation confirmation no later than October 15th. If you want to have lunch on Monday and/or Tuesday at the Restaurant of the Laboratoire Arago, please let us know in advance.

Housing: Several hotels are available in Banyuls-sur-Mer (see below) and a limited number of single rooms and several 2-3 bedrooms are available at the Hotel of the Laboratoire Arago. For reservations at the Hotel of the Laboratoire Arago, please send an e-mail to >accueil@obs-banyuls.fr<.

Hotel El Llagut (other name Al Fanal): Tel: 33 4 6888 0081 Fax: 33 4 6888 1337; <http://www.al-fanal.com/>

Sol Hotel: Tel: 33 4 6898 3434 Fax: 33 4 6888 5545; <http://www.solhotel.fr/>

Hotel Les Elmes: Tel: 33 4 6888 0312 Fax: 33 4 6888 5303; <http://www.hotel-des-elmes.com/>

Hotel Le Catalan: Tel: 33 4 6888 0280 Fax: 33 4 6888 1614; <http://www.hlecatalan.com/>