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P7.15
BODIPY compounds act as photosensitizers for microbial inactivation

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The photodynamic antimicrobial chemotherapy (PACT) exploits the use of a light-activated photosensitizer which transfers the adsorbed energy to oxygen or to any molecule present in the close proximity causing a lethal effect in bacterial cells, thus being a promising technology for clinical and environmental applications.
BODIPYs are versatile dyes never tested before in photodynamic application against prokaryotes. Two novel BODIPYs were synthesized and administered to two bacterial model strains, the Gram positive Staphylococcus xylosus and the Gram negative Escherichia coli. The two photosensitizers differ only in the moiety linked on pyridine nitrogen atom as PS 3 and PS 4 bear a methyl and a benzyl group, respectively. Despite the small structural difference, the methylated PS (3) and the benzylated PS (4) remarkably differ as regard the MIC and the MBC for both microorganisms, PS 3 being much more efficient. In-depth examinations of the antibacterial activity performed using the more efficient compound 3, showed that the photoinactivation was dependent on PS concentration, light dose and cellular density. BODIPY 3 proved to be very effective against S. xylosus and even against E. coli under very "mild" conditions, i.e. very short time of incubation in the dark, limited light dose and low PS concentration, making this molecule a very promising photosensitizer.

P7.16
Development of new synthetic media for recombinant protein production in Antarctic bacterium P. haloplanktis TAC125

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Pseudoalteromonas haloplanktis TAC125 was the first Antarctic Gram-negative bacterium which genome was annotated (Medigue et al 2005). It is characterized by high growth rates at low temperatures combined with the ability to reach high cell densities. The previously described features make the use of PhTAC125, as alternative expression host for the production of soluble and biologically active proteins at low temperatures (Parrilli et al 2008). The optimisation of cultivation strategies are essential factors to obtain high protein production. In a recent paper, we described the use of a defined medium, containing branched amino acids (L, I, V) as carbon sources. The use of LIV medium resulted in a significant increase in either reporter enzyme production or biomass yield with respect to the previously optimized conditions (Giuliani et al 2011). However, high cost and very poor solubility in water of branched amino acids makes unprofitable the use of this medium in large scale processes. Therefore, different new synthetic media have been optimised for recombinant protein production in PhTAC125, based on gluconate and less expensive amino acids, such as L-glutamate and L-aspartate.

P7.17
Exploring methanotrophic activity in geothermal soils from Pantelleria island (Italy)

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Methane is released to the atmosphere by a wide number of natural (geological and biological) and anthropogenic sources, and is the second most important greenhouse gas after CO_2. Microbial oxidation in soils by methanotrophic bacteria contributes to the removal of CH_4 from the atmosphere, and methanotrophic activity was recently detected in volcanic/geothermal areas, where degassing of endogenous gases occurs. Our aim is to describe the methanotrophs at the main exhalative area of Le Favare site at Pantelleria Island, where high CH_4 consumption (up to 950 ng/g/ per h) was measured.
Soil bacterial diversity was analysed by TTGE of amplified 16S rRNA genes and the diversity of proteobacterial methanotrophs was investigated by creating a clone library of the amplified methane mono-oxygenase encoding genes, *pmmoA*. Enrichment cultures, on a mineral medium in a CH_4-enriched atmosphere, led to the isolation of different strains that were identified as *Methylocistis* spp. Understanding the ecology of methanotrophy in geothermal sites will increase our knowledge of the role of such soils in methane emissions.

P7.18
Identification of bacterial siderophores-producers along seawater column in hydrocarbons-enrichments

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The aim of this study is to identify bacterial siderophore-producers in seawater at different depths, namely: surface, max chlorophyll, min oxygen and max depth. Iron is a limiting nutrient for microorganisms in marine environment because of its low availability in aerobic and neutral pH conditions. Bacteria synthesizes siderophores, low-molecular-weight and high-affinity chelators for the iron uptake. During the oceanographic cruise "Bonifacio_2011" four stations were sampled to study the induction of siderophores-producers in different substrates, namely naphthalene, oil and tetradecane and siderophore-producers were selected on CAS medium. As a result , were isolated microorganisms able to produce siderophores mainly in oil and naphthalene enrichments. The isolated strains, after phylogenetic analysis of 16SrDNA, shared 99% homology with *Halomonas sp., Marinobacter sp., Alteromonas sp., Pseudomonas sp., Vibrio sp., Spongibacter sp., Alcanivorax sp.* Moreover, the higher percentage of siderophores-producers was at maximum chlorophyll depth, confirming the syntrophic relationship between algae and siderophore-producers. Interesting, the most part of selected strains belong to hydrocarbons-degrading bacteria suggesting their role as helper during natural attenuation processes.

P7.19
Looking for cold adapted lipase in Pseudoalteromonas genus: a bioinformatic approach

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Esterases and lipases are the most applied biocatalysts in industrial applications. The reasons of this success are related to the wide diversity in the substrates recognised, combined to the exquisite chemoselectivity, regioselectivity and stereoselectivity frequently displayed by this enzymatic class.
Over the last years, growing interest has been devoted on cold-adapted lipolytic enzymes, due to their applicability, amongst the other, in the production of thermal labile secondary chemical compounds, in "domestic" cold-washing, or in "bioremediation" applications carried