January 2012

AFFILIATES LETTER

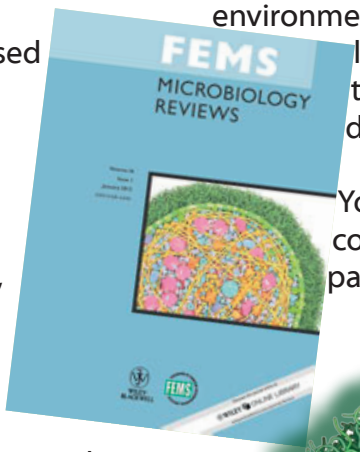
The official newsletter for FEMS Affiliates

Also in this issue:

A new year has arrived once again and as always, the FEMS Journals are proud to show off their new covers.

These covers were sent in the past year by different individuals. The new covers of FEMS Microbiology Ecology (FEMSEC), FEMS Microbiology Letters (FEMSLE), FEMS Immunology and Medical Microbiology (FEMSIM) and FEMS Yeast Research (FEMSYR) were used in previous articles of the journals except for the one used by FEMS Microbiology Reviews (FEMSRE).

The FEMS Publications Department is very pleased with these images.



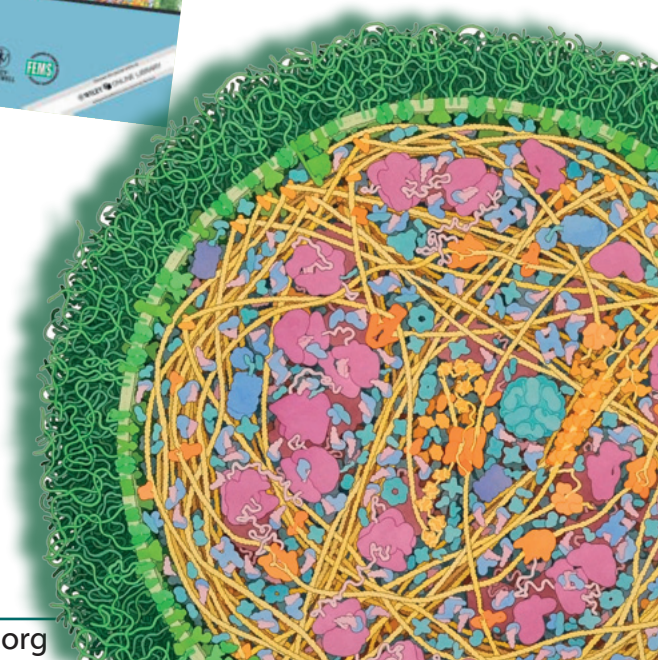
The image that can be seen on the cover of the FEMSRE is an illustration of *Mycoplasma mycoides*, showing all macromolecules. DNA is in yellow, ribosomes are in purple, soluble enzymes are in blue, and cell wall is in green. This illustration is contributed by David S. Goodsell of the Scripps Research Institute.

Goodsell provides illustrations for various occasions and educative purposes. He uses "a combination of hand-drawn and computer graphics illustrations to reveal the invisible world of molecules inside cells." He approves of computer graphics as "a perfect way to display the atomic details of biological molecules."

"Using experimental coordinates determined by x-ray crystallography or other methods, we can see the position of every atom, and examine how they work together to catalyze a reaction or carry genetic information," he writes further.

He uses hand-drawn illustrations in ink and watercolor to explore the environment inside cells, where millions of biomolecules work together to perform the daily tasks of life.

You will find all new journal covers in the following pages.



THE NEW COVERS OF

FEMS Microbiology Letters

Image: Analysis of *Tetrahymena thermophila* surface morphology (*T. thermophila* 2000X).

Credits: Li *et al.* (2011)
FEMS Microbiol Lett 316: 160–168.

Adapted by L. Bandounas
FEMS Central Office

FEMS Yeast Research

Image: Scanning electron micrograph of *Saccharomyces cerevisiae* minicolony growing on plastic surface.

Credits: White *et al.* (2011)
FEMS Yeast Res 11: 223–232.

Adapted by F. Belliard
FEMS Central Office

THE FEMS JOURNALS

FEMS Microbiology Ecology

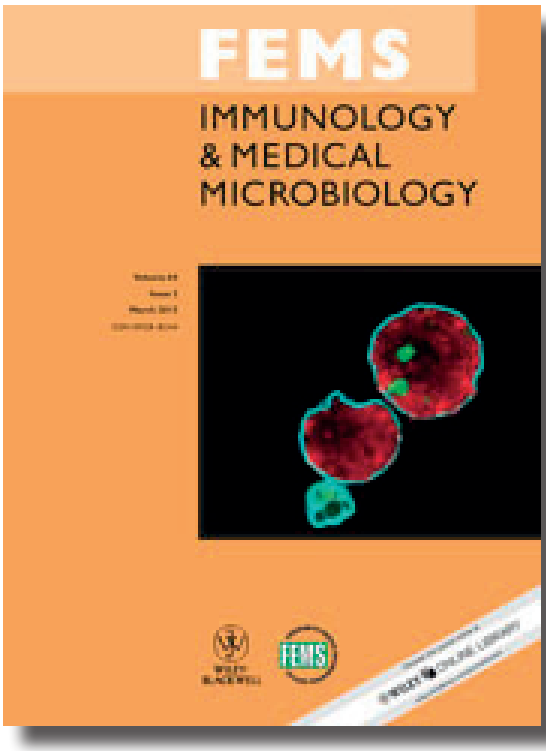
Image: A typical tumor (i.e. skeletal tissue growth anomalies) on the coral *Platygyra carnosus*.

Credits: Chiu *et al.* (2012)
FEMS Microbiol Ecol 79: 380–391.

FEMS Immunology and Medical Microbiology

Image: Laser confocal microscopy of HeLa cells with ΦCPAR39-infected *Chlamydia pneumoniae* AR39. 96 hpi are stained with monoclonal mouse antibody against lipopolysaccharide (red), polyclonal guinea-pig antibody against VP1 (green) and rabbit polyclonal against IncA (blue).

Credits: Hoestgaard-Jensen, K., Christiansen, G., Honoré, B. and Birkelund, S.
FEMS Immunology & Medical Microbiology 62 (2011) 148–156



FEMSEC MiniReview

Application of phylogenetic microarrays to interrogation of human microbiota

Human-associated microbiota is recognized to play vital roles in maintaining host health, and it is implicated in many disease states. While the initial surge in the profiling of these microbial communities was achieved with Sanger and next-generation sequencing, many oligonucleotide microarrays have also been developed recently for this purpose.

Containing probes complementary to small ribosomal subunit RNA gene sequences of community members, such phylogenetic arrays provide direct quantitative comparisons of microbiota composition among samples and between sample groups. Some of the developed microarrays including PhyloChip, Microbiota Array, and HITChip can simultaneously measure the presence and abundance of hundreds and thousands of phylotypes in a single sample.

This review describes the currently available phylogenetic microarrays that can be used to analyze human microbiota, delineates the approaches for the optimization of microarray use, and provides examples of recent findings based on microarray interrogation of human-associated microbial communities.

Oleg Paily and Richard Agans, FEMS Microbiol Ecol 79 (2012) 2-11. doi

Did you know that 2012 is the International Year of Sustainable Energy for all?

2012 is officially declared by the United Nations General Assembly as the **International Year of Sustainable Energy for All**. This was in December 2010. This encourages the promotion of new and renewable sources of energy "to provide energy for all, satisfy the growth in demand and diminish the negative impacts of climate change."

FEMS believes in the power of microbes when it comes to sustainability. Check out these articles and you will understand what we mean:

- **Transcriptional analysis in microbial fuel cells: common pitfalls in global gene expression studies of microbial biofilms**
- **Molecular biology of cyanobacterial salt acclimation**
- **Development of microbial populations in the anaerobic hydrolysis of grass silage for methane production**
- **Impact of trace element addition on biogas production from food industrial waste – linking process to microbial communities**
- **Isolates of *Thermoanaerobacter thermohydrosulfuricus* from decaying wood compost display genetic and phenotypic microdiversity**

FEMS Microbiology Reviews Thematic Issue

Microbial Development

Not long ago, bacteria were considered to be primitive organisms, without a true cytoskeleton nor important forms of development.

This simplistic picture has dramatically changed in recent years and, therefore, Gerhard Braus as Editor of FEMS Microbiol. Rev. and Urs Jenal as Guest Editor have commissioned a series of review papers – 13 in total – that describe important aspects of microbial development.

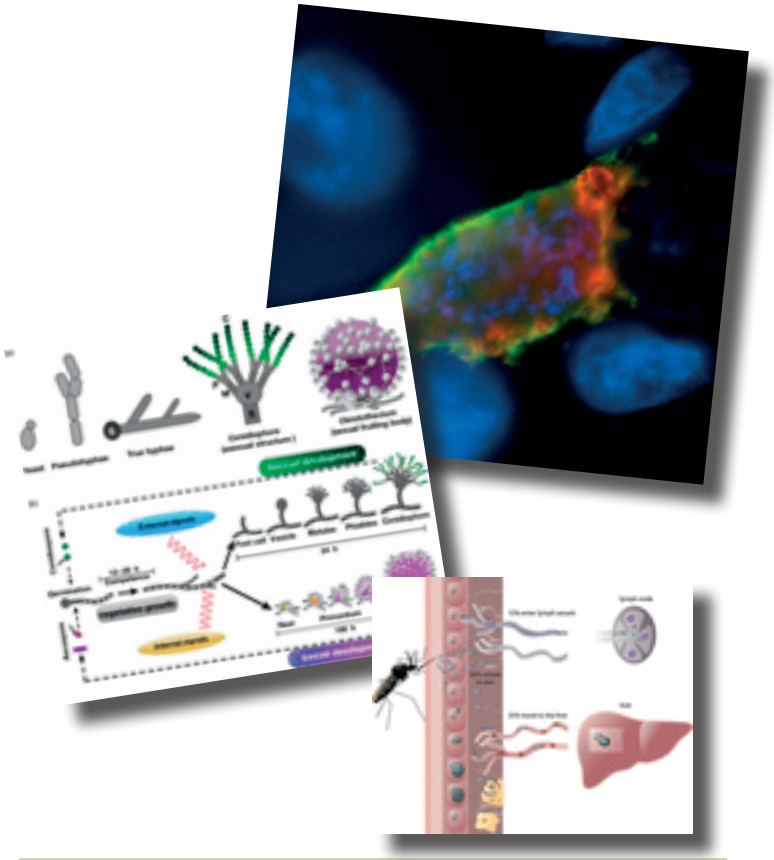
Bacteria not only have an elaborate cytoskeleton acting as a key mediator of cellular organization and shape, but in response to environmental conditions many of these prokaryotes can also engage in sophisticated processes of cell differentiation, i.e. changes of form and function.

The classical example of endospore formation by bacilli reveals a complex regulatory cascade that ensures precise DNA translocation and morphogenesis.

A central question is how proteins get targeted to different sites in the cell. This leitmotif is equally important in other forms of bacterial development such as social motility of *Myxococcus xanthus*, the formation of stalked and swarmer cells in *Caulobacter crescentus* and the biogenesis of the magnetosome in magnetotactic bacteria.

In filamentous bacteria belonging to the genus *Streptomyces*, morphological changes are accompanied by the production of secondary metabolites; a range of cellular signals orchestrate these processes.

Unicellular fungi (yeasts) are very important models in eukaryotic cell biology. Both in liquid media and on solid supports, some yeasts can adopt filamentous growth and gain adhesive properties. What might look like a relatively simple morphological change is in fact the result of complex cell-cell interactions and social behaviour.



Images used for the Thematic Issue on Microbial Development

Related mechanisms are particularly important in fungi that are human or plant pathogens (e.g. *Cryptococcus* or *Ustilago*).

In the filamentous fungus *Aspergillus nidulans*, the coordination between the formation of special cell types and the production of secondary metabolites involves common regulatory proteins that occur throughout the fungal kingdom.

Sexual development and circadian clocks are further examples of fundamentally important processes in biology. Here again, filamentous fungi (*Aspergillus, Neurospora*) are valuable model systems providing insight into the molecular mechanisms involved. Small in size, yet wonderfully complex: this is the picture that microorganisms offer us now.

Spot FEMS in 2012

If you want to know where FEMS will be visible this year, you are welcome to attend any of the meetings below which we are sponsoring for 2012.

Here is the full list:

March 30	11th European Conference on Fungal Genetics, *Germany*
April 10	Environment Microbiology and Biotechnology 2012, *Italy*
April 15	3rd Workshop on Microbial Sulfur Metabolism, *The Netherlands*
April 18	5th European Spores Conference, *United Kingdom*
April 22	8th Int'l Conference Contaminants in Freezing Ground, *Austria*
May 10	Microbial Stress Responses, *Italy*
June 3	Europic 2012, *France*
June 6	5th Int'l Conference on Molecular Mechanism of Fungal Cell Wall Biogenesis, *Croatia*
June 18	8th INRA-RRI Symposium on Gut Micriobology, *France*
July 9	3rd Central European Summer Course on Mycology, *Hungary*
July 15	19th Congress of the Int'l Organisation for Mycoplasmology, *France*
Aug 19	The Power of the Small ISME14, *Denmark*
Aug 25	Microbial Metabolites on Nature and Medicine, *Croatia*
Sep 9	18th Int'l Pathogenic Neisseria Conference, *Germany*
Sep 10	9th Intl' Congress on Extremophiles, *Spain*
Sep 10	Tuberculosis 2012, *France*
Sep 16	9th Int'l Meeting on Yeast Apoptosis, *Italy*
Sep 23	Central European Symposium on Antimicrobials and Antimicrobial Resistance, *Croatia*
Okt 25	Actinobacteria within Soils, *Germany*
Nov 14	Marine Microbiology and Biotechnology, *Ireland*

CALL FOR APPLICATIONS: FEMS MEETING GRANTS

The first grant deadline of every FEMS year is always for the FEMS Meeting Grants which is March 1 (of the year preceding that in which the meeting takes place).

So as early as now, we are calling on all those who are currently planning Scientific conferences, laboratory workshops, and training courses in the European area. Events such as these will be considered for a FEMS Meeting Grant.

The maximum amount of a Meeting Grant is EUR 15 000. The Meeting Grant may only be used to support the attendance of:

- Young Scientists (minimum of 60% and a maximum of 80% of total grant value) and
- Invited Speakers (minimum of 20% and a maximum of 40% of total grant value)

On special request by the organisers and upon approval by the Grants Secretary, a total grant amount can be used to support young scientists only.

The regulations and application forms are available electronically. Please read them carefully before contacting the FEMS Central Office.

A list of events that were granted a FEMS Meeting Grant is also maintained online.

Or be spotted

"Not just the Mexican weather was amazing, being able to participate in the ISBA conference was very fruitful: it greatly increased the visibility of my research, and led to a range of promising new plans and collaborations." - *Marnix Medema, FEMS Meeting Attendance Grantee, ISBA Conference, Mexico*

Like the sweater? Be a FEMS Meeting Attendance Grant awardee in 2012!

International Biodeterioration & Biodegradation Society

The International Biodegradation and Biodeterioration Society (IBBS) began in 1969. Its mission then, as now, was to bring together those working in the diverse fields in which biodegradation and biodeterioration – and remediation – were an issue: in effect any area of applied microbiology!

The Society is linked closely to its journal, International Biodegradation and Biodeterioration, published by Elsevier, and membership options can include journal subscription. New members are always welcome and member participation is actively encouraged.

IBBS membership is global. To keep in contact, Skype is used at Council meetings; publications are free for download from the website. Triennial conferences are also firmly international. IBBS-15 was held in Vienna, IBBS-14 in Sicily, with the host organisation heavily involved in relevant research, particularly the deterioration and conservation of cultural heritage.

Several IBBS Council members are UK-based, so in between the triennial conferences, smaller meetings that are more specialised are held – for example on Fungal Biodeteriogens (Manchester 2009), Disinfection and Decontamination (Preston, 2010), Approaches to biofilm control(Southampton, 2012).

In addition, IBBS supports meetings held around the world, for example the Latin American Biodeterioration Society (LABS) meetings (triennial), and Biodeterioration of wood and wood products (Denmark, 2013).

IBBS is especially proud of its educational resources, which it has been building over the past 3 years. Every 6 months, it launches five new one-page summaries of key areas of interest to its members.

20 of these resources are already available on its website, addressing substrates such as wood, stone, art, textiles, cosmetics, paint, metals, phenomena such as biofilms, viable but non-culturable microorganisms, and providing information on testing, for example using preservatives.

Photo of people looking at the education resources at the Vienna conference.

IBBS members are invited to produce these resources for consideration for dissemination, and encourage feedback on all its activities. The newsletter is also available on the website.

This year, IBBS contributed its expertise and images to the 2012 calendar published by the Society for General Microbiology, which focused on the biodeterioration of cultural heritage. This project enables the work of IBBS to be recognised more widely. It also raises awareness amongst opinion formers both nationally and internationally. Copies of the calendar are available on request from *j.verran@mmu.ac.uk*.

IBBS thanks FEMS for all the support it provides to its membership in terms of grants, dissemination of news, and its own conferences.

- Text and photo from Prof. Joanna Verran

Professor of Microbiology, Manchester Metropolitan University, UK

FEMS Council representative for IBBS

European Academy of Microbiology to host Co-infections meeting in Halle, Germany

The European Academy of Microbiology (EAM) will host a Co-infections Meeting at the Leopoldina German Academy of Sciences in Halle, Germany on June 7 and 8, 2012. The EAM is an initiative of the Federation of European Microbiological Societies (FEMS) and this meeting is its 2nd meeting to date.

This unique event is co-hosted by the Leopoldina German Academy of Sciences. The said institute is the world's oldest continuously existing academy of its sort.

It was founded in 1652 as Academia Naturae Curiosorum in the Free Imperial City of Schweinfurt and was officially recognized as an academy in 1677. In 1687, it was vested with the privileges of an imperial academy. It has been based in Halle/Saale, Germany since 1878 and in February 2008, the Leopoldina was named national academy.

Speakers will be coming from different institutes. Topics such as Complex microbial communities and gene and signal exchanges, Bacterial/viral symbionts of bacteria, Epidemiology, Virus-bacterial interactions and Microbiota in infections & Susceptibility to infection shall be tackled.

More information on the event can be found at www.coinfections2012.com.

The Leopoldina German Academy of Sciences in Halle, Germany is the world's oldest continuously existing academy of its sort.

DEADLINES

1 March 2012
FEMS Meeting Grants
(for meetings to be held in 2013)

1 April 2012
1 September 2012
FEMS Meeting Attendance Grants

15 June 2012
1 December 2012
FEMS Research Fellowships
FEMS Visiting Scientist Grants

1 June 2012
15 December 2012
FEMS National & Regional Congresses Grants

1 October 2012
FEMS Advanced Fellowships

Microbiology Tidbits

That Which Does Not Kill Yeast Makes It Stronger

Cells trying to keep pace with constantly changing environmental conditions need to strike a fine balance between maintaining their genomic integrity and allowing enough genetic flexibility to adapt to inhospitable conditions. In their latest study, researchers at the Stowers Institute for Medical Research were able to show that under stressful conditions yeast genomes become unstable, readily acquiring or losing whole chromosomes to enable rapid adaption.

Source: Stowers Institute via Newswise

Viruses Con Bacteria Into Working for Them

MIT researchers have discovered that certain photosynthetic ocean bacteria need to beware of viruses bearing gifts: These viruses are really con artists carrying genetic material taken from their previous bacterial hosts that tricks the new host into using its own machinery to activate the genes, a process never before documented in any virus-bacteria relationship.

Source: Massachusetts Institute of Technology

How Cholera Bacterium Gains a Foothold in the Gut

A team of biologists at the University of York has made an important advance in our understanding of the way cholera attacks the body. The discovery could help scientists target treatments for the globally significant intestinal disease which kills more than 100,000 people every year.

Source: University of York

Research On Vitamins Could Lead to the Design of Novel Drugs to Combat Malaria

New research by scientists at the University of Southampton could lead to the design of more effective drugs to combat malaria.

Source: University of Southampton via Alpha Galileo

The FEMS Affiliates Letter
is a production
of FEMS Central Office

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We advance and unify microbiology knowledge.