

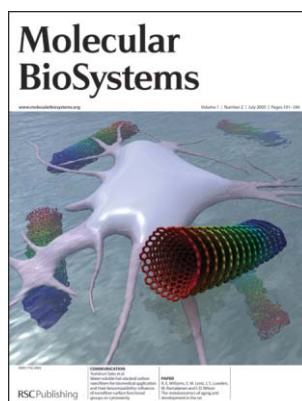
## IN THIS ISSUE

ISSN 1742-206X CODEN MBOIBW 1(2) 101–184 (2005)



### Cover

See Jitakshi De, Ya-Ching Chang, Kausar N. Samli, Jonathan C. Schisler, Christopher B. Newgard, Stephen A. Johnston and Kathlynn C. Brown, page 149. Binding of a *Mycoplasma*-specific targeting peptide to a *M. arginini* contaminated mammalian cell culture as observed by immunofluorescent microscopy. Image reproduced by permission of Kathlynn Brown *et al.*, from *Mol. BioSyst.*, 2005, 1, 149.



### Inside cover

See Yoshinori Sato, Ken-ichiro Shibata, Hideo Kataoka, Shin-ichi Ogino, Fugetsu Bunshi, Atsuro Yokoyama, Kazachika Tamura, Tsukasa Akasaka, Motohiro Uo, Kenichi Motomiya, Balachandran Jeyadevan, Rikizo Hatakeyama, Fumio Watari and Kazuyuki Tohji, page 142. The dispersion of water-soluble hat-stacked carbon nanofibers (H-CNFs) was prepared, and H-CNFs induced human monocytic THP-1 cells to produce TNF- $\alpha$ , although the activity was much lower than that of microbial lipopeptide. Image reproduced by permission of Yoshinori Sato *et al.*, from *Mol. BioSyst.*, 2005, 2, 142.

## PROFILE

107

### Meet the Editorial Board

*Molecular BioSystems* profiles Editorial Board members Thomas Kodadek, Ruedi Aebersold, Patricia Bassereau, Hagan Bayley, Benjamin Cravatt, Christof Niemeyer, Kazunari Taira and Suzanne Walker.



## HOT OFF THE PRESS

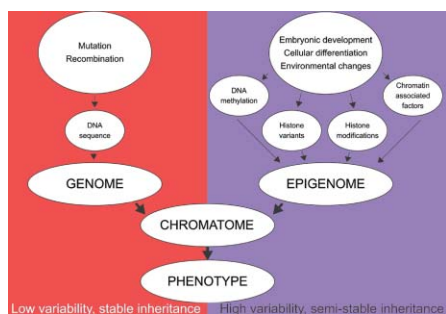
109

### Hot off the Press

Topics highlighted in this month's *Hot off the Press* include the use of small molecules to alter cellular functions, using quantum dots to identify leukemia cells, and a quantitative proteomic strategy for investigating yeast pheromone signalling.

**HOT**  
**OFF THE PRESS**

112

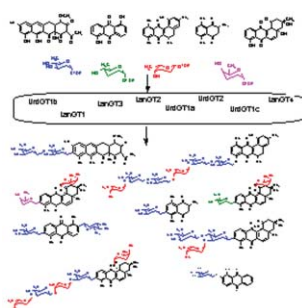


### “Chromatomics” the analysis of the chromatome

Axel Imhof\* and Tiziana Bonaldi

Environmental changes can lead to heritable differences between individuals by changing the chromatome rather than the primary DNA sequence. Methods for the study of chromatics are discussed.

117

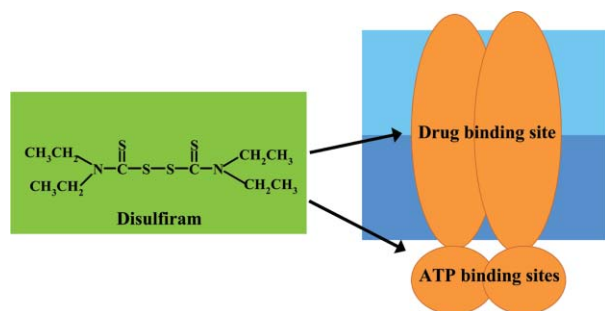


### Glycosyltransferases involved in the biosynthesis of biologically active natural products that contain oligosaccharides

Andriy Luzhetskyy, Andreas Vente and Andreas Bechthold\*

The generation of novel glycosylated compounds by combinatorial biosynthesis is a well working technology. Using glycosyltransferases from the producers of urdamycin and landomycin the full potential of this approach has been demonstrated, more than 40 novel angucyclines have been produced.

127

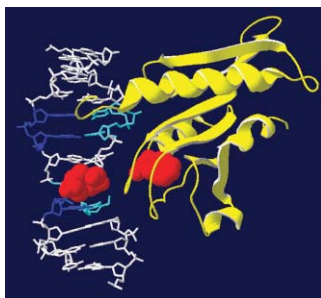


### Disulfiram, an old drug with new potential therapeutic uses for human cancers and fungal infections

Zuben E. Sauna, Suneet Shukla and Suresh V. Ambudkar\*

Disulfiram: a modulator with a dual mode of action for the reversal of multidrug resistance mediated by ABC drug transporters in human cancers and fungal infections.

135



### Identification of base-specific contacts in protein–DNA complexes by photocrosslinking and mass spectrometry: a case study using the restriction endonuclease SsoII

Vera Pingoud,\* Hildegard Geyer, Rudolf Geyer, Elena Kubareva, Janusz M. Bujnicki and Alfred Pingoud

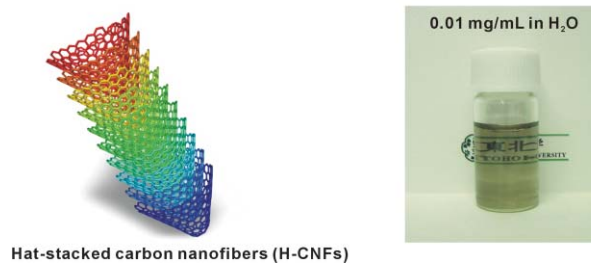
5-Iodopyrimidine substituted oligodeoxyribonucleotides can be crosslinked to nucleic acid-binding proteins by irradiation with 325 nm light and the site of crosslinking can be accurately determined by mass spectrometry.

142

**Strict preparation and evaluation of water-soluble hat-stacked carbon nanofibers for biomedical application and their high biocompatibility: influence of nanofiber-surface functional groups on cytotoxicity**

Yoshinori Sato,\* Ken-ichiro Shibata, Hideo Kataoka, Shin-ichi Ogino, Fugetsu Bunshi, Atsuro Yokoyama, Kazuchika Tamura, Tsukasa Akasaka, Motohiro Uo, Kenichi Motomiya, Balachandran Jeyadevan, Rikizo Hatakeyama, Fumio Watari and Kazuyuki Tohji

Modification or coating of the surface H-CNF functional group was a significant cytotoxic factor that affected cell activation.



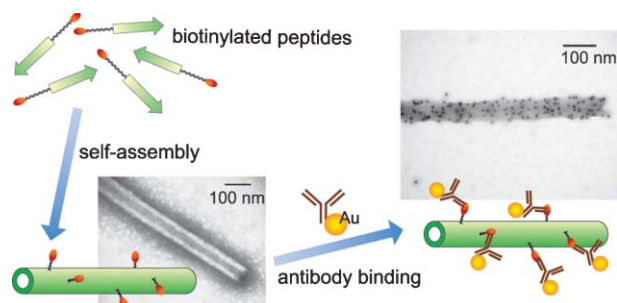
Hat-stacked carbon nanofibers (H-CNFs)

146

**Construction of biotinylated peptide nanotubes for arranging proteins**

Sachiko Matsumura, Shinobu Uemura and Hisakazu Mihara\*

Designed  $\beta$ -sheet peptides with a biotin group formed a tubular structure to which the anti-biotin antibodies specifically bound. The antibody binding was regulated by the difference in hydrophobic properties of the linkers between biotin and peptide.



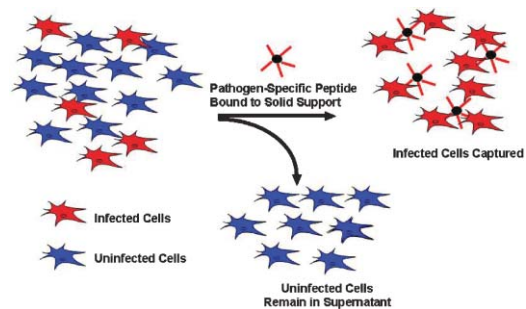
## PAPERS

149

**Isolation of a *Mycoplasma*-specific binding peptide from an unbiased phage-displayed peptide library**

Jitakshi De, Ya-Ching Chang, Kausar N. Samli, Jonathan C. Schisler, Christopher B. Newgard, Stephen A. Johnston and Kathlynn C. Brown\*

The isolation of a peptide that is able to bind specifically to *Mycoplasma arginini* infected cells while avoiding binding to uninfected mammalian cells is described.

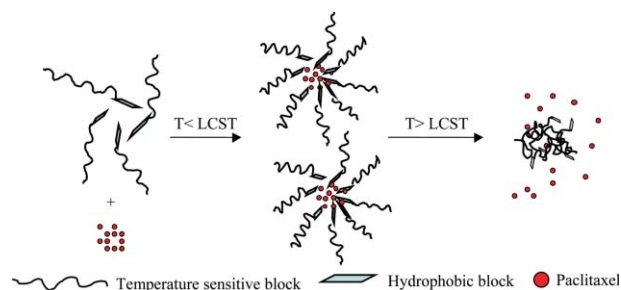


158

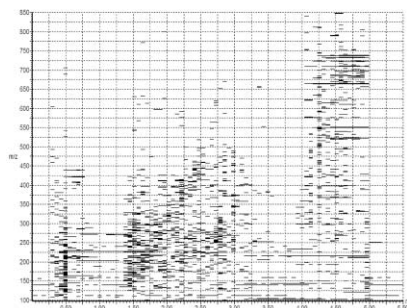
**Thermally sensitive micelles self-assembled from poly(*N*-isopropylacrylamide-*co*-*N,N*-dimethylacrylamide)-*b*-poly(*D,L*-lactide-*co*-glycolide) for controlled delivery of paclitaxel**

S. Q. Liu, Y. W. Tong and Y. Y. Yang\*

Micelles self-assembled from the temperature sensitive block copolymers were stable at temperatures below the LCST. But they deformed above the LCST, leading to accelerated paclitaxel release and greater cytotoxicity.



166

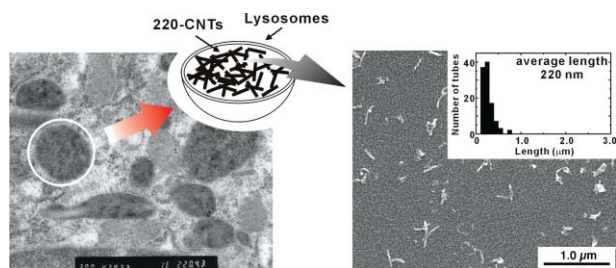


### The metabolomics of aging and development in the rat: an investigation into the effect of age on the profile of endogenous metabolites in the urine of male rats using $^1\text{H}$ NMR and HPLC-TOF MS

R. E. Williams, E. M. Lenz, J. S. Lowden, M. Rantalainen and I. D. Wilson\*

Novel  $^1\text{H}$  NMR and HPLC-MS-based metabolomic investigations of aging in rats are described. Profound changes in metabolite profiles obtained from 4 to 12 weeks were observed.

176



### Influence of length on cytotoxicity of multi-walled carbon nanotubes against human acute monocytic leukemia cell line THP-1 *in vitro* and subcutaneous tissue of rats *in vivo*

Yoshinori Sato,\* Atsuro Yokoyama, Ken-ichiro Shibata, Yuki Akimoto, Shin-ichi Ogino, Yoshinobu Nodasaka, Takao Kohgo, Kazuchika Tamura, Tsukasa Akasaka, Motohiro Uo, Kenichi Motomiya, Balachandran Jeyadevan, Mikio Ishiguro, Rikizo Hatakeyama, Fumio Watari and Kazuyuki Tohji

Stronger inflammation was caused by nanotubes of 825 nm length compared to those of 220 nm. Most 220 nm ones were in lysosomes. No necrosis or degeneration was observed.

## AUTHOR INDEX

Akasaka, Tsukasa, 142, 176  
 Akimoto, Yuki, 176  
 Ambudkar, Suresh V., 127  
 Bechthold, Andreas, 117  
 Bonaldi, Tiziana, 112  
 Brown, Kathlynn C., 149  
 Bujnicki, Janusz M., 135  
 Bunshi, Fugetsu, 142  
 Chang, Ya-Ching, 149  
 De, Jitakshi, 149  
 Geyer, Hildegard, 135  
 Geyer, Rudolf, 135  
 Hatakeyama, Rikizo, 142, 176

Imhof, Axel, 112  
 Ishiguro, Mikio, 176  
 Jeyadevan, Balachandran, 142, 176  
 Johnston, Stephen A., 149  
 Kataoka, Hideo, 142  
 Kohgo, Takao, 176  
 Kubareva, Elena, 135  
 Lenz, E. M., 166  
 Liu, S. Q., 158  
 Lowden, J. S., 166  
 Luzhetskyy, Andriy, 117  
 Matsumura, Sachiko, 146

Mihara, Hisakazu, 146  
 Motomiya, Kenichi, 142, 176  
 Newgard, Christopher B., 149  
 Nodasaka, Yoshinobu, 176  
 Ogino, Shin-ichi, 142, 176  
 Pingoud, Alfred, 135  
 Pingoud, Vera, 135  
 Rantalainen, M., 166  
 Samli, Kausar N., 149  
 Sato, Yoshinori, 142, 176  
 Sauna, Zuben E., 127  
 Schisler, Jonathan C., 149  
 Shibata, Ken-ichiro, 142, 176

Shukla, Suneet, 127  
 Tamura, Kazuchika, 142, 176  
 Tohji, Kazuyuki, 142, 176  
 Tong, Y. W., 158  
 Uemura, Shinobu, 146  
 Uo, Motohiro, 142, 176  
 Vente, Andreas, 117  
 Watari, Fumio, 142, 176  
 Williams, R. E., 166  
 Wilson, I. D., 166  
 Yang, Y. Y., 158  
 Yokoyama, Atsuro, 142, 176

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