

one blood culture isolate were lysotyped, their plasmids extracted and analyzed after restriction enzyme digestion. All isolates were of lysotype 10, and all had an identical 72 kb plasmid. Apart from these two cases, STM of lysotype 10 has never been isolated in Switzerland (1978–1984), and the particular plasmid pattern has not been observed among 89 strains analyzed in 1982/83.

Urogenital mycoplasma and *Neisseria gonorrhoeae*: an association?

E. Sakellarides, M.-A. Page, S. Levard and A. Laszlo
Institut de Microbiologie, CHUV, CH-1005 Lausanne

It is known that sexually transmitted diseases may occur in pair simultaneously. Thus, *Neisseria gonorrhoeae* urethritis in 40–45% of the cases is associated with *Chlamydia trachomatis*. This high proportion suggests the administration of a tetracycline active against both organisms.

We observed that the growth of *Neisseria gonorrhoeae* or the presence of its antigens, demonstrated by an immunoenzymatic assay, is frequently followed by the isolation of *Mycoplasma hominis* or *Ureaplasma urealyticum* together or separately. Our results show the percentage of this association and the possible nutritional or biological explanation.

The pathological role of the association and the effects of treatments are discussed.

Temperature-induced hand inversion in *Bacillus subtilis* macrofibers

D. Favre and N. H. Mendelson
Département de Biochimie Médicale, Faculté de Médecine, Université de Genève, CH-1211 Genève, and Department of Molecular and Cellular Biology, University of Arizona, Tucson, USA

Study of the behavior of helical *Bacillus subtilis* macrofibers growing at given temperatures or submitted to a temperature up- or downshift reveals that: 1) cell wall conformation is temperature dependent 2) wall upwelling is required for helix hand inversion. Left to right inversion – but not right to left – requires synthesis at the new temperature of a specific amount of wall. Thus, the two processes appear to be asymmetrical. Relaxation motions induced by lysozyme or by autolysins indicate that: 1) peptidoglycan plays a key role in helical deformation 2) cell wall is under stress. Macrofiber behavior following inhibition of wall or protein synthesis reveals the involvement of a surface-acting wall protein(s) in development of left-handed fibers. Protease digestion of this protein(s) suggests that it is involved in the establishment of wall stress.

Characterization of NAD-dependent variants of *Pasteurella multocida* isolated from pneumonic lesions in swine

L. Corboz
Institut für Veterinärbakteriologie der Universität Zürich, CH-8001 Zürich

Organisms with morphological and cultural characteristics of *P. multocida*, but showing symbiotic growth with *Staphylococcus epidermidis* like *Haemophilus parasuis* were isolated from lesions of enzootic pneumonia in two pigs. In subsequent investigations they were found to require NAD but no serum or other enrichment for growth. Colonies were very mucoid and confluent but they did not adhere to the agar. Biochemical characteristics other than NAD-dependence were similar to those of *P. multocida*; positive reactions: oxydase, catalase, ornithin decarboxylase, acid produced from glucose, sucrose, xylose, sorbitol, mannitol; negative reactions: indole, urea, esculin, ONPG, no acid from arabinose, rhamnose, lactose, trehalose, maltose, inositol, adonitol, dulcitol, salicin. Antibigrams were similar to those of *P. multocida* isolates in swine. However, no line of precipitation was observed against antisera to *P. multocida* types

Experientia 42 (1986), Birkhäuser Verlag, CH-4010 Basel/Switzerland

1 to 16 of Heddelston. We suppose that these organisms may represent variants of *P. multocida* rather than a new species of the genus *Haemophilus*.

Bacterial metabolism and toxicity of halogenated anilines

A. Wasserfallen, J. Zeyer and K.N. Timmis
Centre Médical Universitaire, Département de Biochimie Médicale, 9, avenue de Champel, CH-1211 Genève 4

The microbial degradation of a number of ring-halogenated anilines frequently used in pesticide chemistry was investigated in pure cultures. A *Moraxella* sp. which grew on fluoro-, chloro- and bromosubstituted anilines as sole sources of carbon and nitrogen was isolated from soil. The pathway of degradation was determined by analysis of catabolic intermediates and enzymatic activities. The substituted anilines were converted by an oxygenase with a broad substrate specificity to the corresponding catechols, which were further metabolized through the ortho-cleavage pathway.

In addition to the catabolic studies, the growth inhibitory effect of various anilines on *Moraxella* sp. growing on a complex medium was also determined. The degree of inhibition ranged from 5% (addition of 1 mM aniline) to 100% (addition of 1 mM 3,4-dichloroaniline) and was correlated with the pKa and the octanol/water distribution coefficient of the anilines.

Immunocytochemical localization of protein and DNA components of the bacterial nucleoid

M.-A. Bjornsti, J. A. Hobot, A. Kelus, W. Villiger and E. Kellenberger
Microbiology Dept. Biozentrum, University of Basel, CH-4056 Basel, and Basel Institute of Immunology, CH-4002 Basel

The structural organization of the bacterial nucleoid was studied by colloidal-gold protein A immunolabeling of thin sections of rapidly frozen *Escherichia coli* cells embedded in K4M. Our previous results with cryosubstituted *E. coli* showed a new aspect of the nucleoid: ribosome-free spaces, filled with grainy and fine stranded material, were identified as DNA-containing by specific Osmium-ammines staining (Hobot et al., J. Bact., in press). In this study, specific immunolabeling with sera from MRL/Mp mice and monoclonal anti-DNA IgGs localize double stranded and single stranded DNA, respectively, within the ribosome-free areas. Polyclonal rabbit antibodies specific for two bacterial proteins believed identical to 'histone-like' proteins Hu and HLP I, were similarly used to study their role in the presumed 'nucleosomic' structure of the nucleoid. The significance of the intracellular distribution of these DNA-binding proteins, relative to ss and ds DNA, is discussed in the context of the transcriptionally active bacterial genomic structure.

Chlorhexidin effects on pulmonary tissue in guinea pigs. Initial results

F. Lautier, B. Ludes, L. Italiano and A. Watter
Institut d'Hygiène et de Médecine Préventive Faculté de Médecine, F-67085 Strasbourg Cedex

With the object of observing pathological effects of chlorhexidin solutions on alveoli, we placed guinea pigs in artificial ventilation. The chlorhexidin solutions were added to the humidifier of the respirator; we tested 10 guinea pigs with a 0.06% solution, 10 others with a 20% solution and 10 animals with steril distilled water. The guinea pigs having very well survived, we were able to cut off their lungs after 24 h of experimenting in view of a morbid anatomical observation. The results showed a focal mesothelial hyperplasia, very moderate, without specific significance. We never observed a lesion on the air cells of the lungs.