Minutes

Jean-François Bernardet,
Secretary

International Committee on Systematics of Prokaryotes

Subcommittee on the taxonomy of *Flavobacterium* and *Cytophaga*-like bacteria

Minutes of the meetings, 26 July 2005, San Francisco, CA, USA

Session 1 – Closed meeting

Minute 1. Call to order. The closed meeting was called to order by the Chairman, B. Holmes, at 14:10 on 26 July 2005 at the Moscone Convention Center, San Francisco, CA, USA.

Minute 2. Record of attendance. The members present were J.-F. Bernardet (Secretary), B. Holmes (Chairman), J. Bowman, B. Bruun and Y. Nakagawa. Apologies were received from C. Hugo and P. Segers.

Minute 3. Approval of the agenda. The written agenda was presented and approved.

Minute 4. Minutes of the previous meetings. The minutes of the last meetings, which were held on 30 July 2002 in Paris, France, had been approved by mail and published [Bernardet, *Int J Syst Evol Microbiol* 54 (2004), 285–287]. Reprints were distributed by J.-F. Bernardet to the members present.

Minute 5. Changes in membership and officers. Resignations had been received from K. A. Malik, P. Segers and E. Yabuuchi. The subcommittee recognizes the excellent work these colleagues have performed on behalf of the subcommittee and thanks them for their contribution. J.-F. Bernardet had contacted several individuals who were suggested as possible new members during the previous meeting. Four of them have accepted and their membership has been formally accepted since the last meeting by A. Ventosa, the Secretary for Subcommittees of the ICSP. The new members of the subcommittee are Olga Nedashkovskaya (Pacific Institute of Bioorganic Chemistry, Vladivostok, Russia), Marc Vancanneyt (Gent University, Belgium), Makoto Suzuki (Kyowa Hakko Kogyo Co., Tokyo, Japan) and Jongsik Chun (Seoul National University, Korea). B. Holmes noted that the subcommittee now comprises a proper number of members, all devoting at least part of their research to taxonomic studies of members of the family *Flavobacteriaceae* and related bacterial groups. B. Holmes and J.-F. Bernardet asked other members present whether they wished them to resign as Chairman and Secretary, respectively, of the subcommittee; following a negative response,

they agreed to maintain their positions for the next term. A copy of the updated list of current members was given to the members present.

Minute 6. Plan for future activities. Following publication of the minimal standards for the description of new taxa in the family *Flavobacteriaceae* in 2002, a discussion arose over the minimal standards that should now be drawn up for the other families in the *Flavobacterium–Cytophaga* group. Whilst a thorough emendation of the families *Spirosomaceae* and *Cytophagaceae* will be necessary before their minimal standards can be drawn up, the families *Sphingobacteriaceae* and *Cryomorphaceae* have both been described recently (i.e., 1998 and 2003, respectively) based on firm phenotypic and genomic grounds. Hence, drawing up minimal standards for new taxa in these families should be relatively straightforward. J.-F. Bernardet will ask M. Vancanneyt whether he would be willing to draw up minimal standards for the family *Sphingobacteriaceae*, maybe together with P. Steyn in South Africa who co-authored the description of the family with our colleagues in Gent University. J. Bowman, who described the family *Cryomorphaceae*, said he would think about drawing up minimal standards, although the group is phylogenetically rather complex. J.-F. Bernardet raised the problem of the families proposed by G. Garrity in his *Taxonomic Outlines of the Prokaryotic Genera* for the new edition of *Bergey's Manual* (e.g., '*Saprospiraceae*', '*Flexibacteraceae*', '*Flammeovirgaceae*' and '*Crenotrichaceae*'). Since these families were not described as a result of thorough taxonomic studies, it may be difficult to identify suitable authors to draw up minimal standards for them. It was noted by B. Holmes that minimal standards should not necessarily be drawn up for whole families and that it may be more convenient to restrict minimal standards to well-defined genera.

B. Bruun raised the problem of the lack of relationships between the different subcommittees. B. Holmes confirmed that he never managed to establish any kind of collaboration with the subcommittee in charge of the Gram-negative anaerobic rods (including the *Bacteroidaceae* that belong to the same phylum as the *Flavobacterium–Cytophaga* group). He suggested that we try organizing a joint meeting with this subcommittee during the next IUMS congress. B. Bruun

pointed out that collaboration between subcommittees should also be set up, or at least encouraged, by the International Committee on the Systematics of Prokaryotes that heads the subcommittees. Y. Nakagawa and J. Bowman noted that they both know some of the members of the ICSP and that they could ask their opinion on this issue. B. Bruun suggested that minutes of the subcommittee meetings are sent to the ICSP and that we request the agendas and minutes of their meetings in return. B. Bruun and Y. Nakagawa noted that collaboration between subcommittees is even more necessary considering that the number of taxonomists seems to be decreasing as a result of a lack of interest and funding. There are also fewer scientists specialized in particular bacterial groups. B. Holmes suggested that an international symposium on the *Flavobacterium–Cytophaga* group should be organized. Like those held in Braunschweig in 1980 and in Bloemfontein in 1992, this symposium would allow all aspects of these bacteria to be considered, i.e. clinical and veterinary microbiology, ecology, endosymbionts, agriculture, food products, marine bacteriology, cold-adapted organisms, production of enzymes and possible applications etc. J.-F. Bernardet noted that he would not be able to organize such a meeting before the congress of the International Union of Microbiological Societies in 2008.

Minute 7. Current membership. The current membership of the subcommittee is as follows: J.-F. Bernardet (Secretary), Jouy-en-Josas, France; J. Bowman, Hobart, Tasmania, Australia; B. Bruun, Hillerød, Denmark; J. Chun, Seoul, Korea; B. Holmes (Chairman), London, UK; C. Hugo, Bloemfontein, South Africa; Y. Nakagawa, Kisarazu, Japan; O. Nedashkovskaya, Vladivostok, Russia; M. Suzuki, Tokyo, Japan; and M. Vancannet, Gent, Belgium.

Minute 8. Next meeting. If no previous opportunity arises, the next subcommittee meeting will be held at the Congress of the International Union of Microbiological Societies that will be held in Istanbul, Turkey, in 2008.

Minute 9. Adjournment. The closed meeting was adjourned at 15:10.

Session 2 – Open meeting

Minute 10. Call to order. The open meeting was called to order by the Chairman, B. Holmes, at 15:30 on 26 July 2005 at the Moscone Convention Center, San Francisco, CA, USA.

Minute 11. Record of attendance. The members present were J.-F. Bernardet (Secretary), B. Holmes (Chairman), J. Bowman, B. Bruun and Y. Nakagawa.

Minute 12. Recent taxonomic developments. J.-F. Bernardet presented an overview of the taxonomic and nomenclatural changes in the *Flavobacterium–Cytophaga* group that had been published since the last meeting of

the subcommittee. The long list of novel species and genera that have been described together with phylogenetic trees based on the 16S rRNA gene sequences prepared by Y. Nakagawa were distributed to the members present. A discussion arose on some of the new taxa and names. J.-F. Bernardet also commented on the main research groups currently actively describing novel taxa in the *Flavobacterium–Cytophaga* group and on the ecological niches they investigate. O. Nedashkovskaya's group in Vladivostok, working in collaboration with Korean, Belgian (Gent University) and other Russian colleagues, mostly investigate marine environments in the Sea of Japan and Antarctica; they have recently described several novel organisms isolated from marine plants and animals (algae, sea urchins, holothurians, soft corals). The group at Gent University (mostly S. Van Trappen *et al.*) had described the genus *Gillisia* and several novel *Flavobacterium* species from microbial mats in Antarctic lakes. In collaboration with C. Hugo in South Africa, they have also described novel *Chryseobacterium* species from dairy products and raw chicken. S. Lau's group in Hong Kong has published several new genera, members of which were isolated from seawater, marine sediment, mangrove microbial mats and marine sponges. Different groups in Korea have been actively describing novel taxa from various freshwater, marine and Antarctic environments. J. Bowman has also continued to describe many novel organisms from his extensive collection of Antarctic isolates and he commented on his recent studies.

J.-F. Bernardet then briefly mentioned his recently published polyphasic study of *Chryseobacterium* isolates from freshwater fish and frogs. None of the isolates belonged to the *Chryseobacterium* species that had previously been recovered from such sources, but several clusters of strains that probably represent novel species have been identified. Interestingly, the human opportunistic pathogen *Elizabethkingia meningoseptica* (formerly *Chryseobacterium meningosepticum*) was found in several fish and frogs; B. Bruun noted that this was not surprising since *E. meningoseptica* strains are commonly found in freshwater.

J.-F. Bernardet also explained that he is involved in the ongoing sequencing of the whole genome of *Flavobacterium psychrophilum*, a very serious pathogen of salmonid fish worldwide. His group is mainly interested in the identification of the main mechanisms of virulence and of the bacterial components that trigger an immune response in infected fish. When completed, the sequence will be made available to the scientific community. J. Bowman observed that the genomes of several marine members of the family *Flavobacteriaceae* are currently being sequenced. B. Bruun suggested that the list of species in the *Flavobacterium–Cytophaga* group for which whole genomes have been sequenced should be included on the subcommittee website.

Minute 13. Summary of activities. J.-F. Bernardet explained that he had recently sent new information to

R. Dunford in order to update the subcommittee website, i.e. changes in members' addresses, future and past meetings and especially additions to the list of taxa covered by the subcommittee [since the meeting, the changes to the subcommittee membership have also been made]. J.-F. Bernardet noted that all chapters dealing with members of the family *Flavobacteriaceae*, most of them authored or co-authored by members of the Subcommittee, are now available in the electronic edition of *The Prokaryotes*. However, the last chapters that had been received (including the chapters 'The genus *Flavobacterium*' and 'The genera *Chryseobacterium* and *Elizabethkingia*') were not fully corrected and edited when the Editor decided to launch a print edition, neglecting the electronic one. The electronic edition is due to be updated by mid 2007; only then will it be possible to make the final corrections.

Regarding the new edition of *Bergey's Manual*, J.-F. Bernardet explained that several chapters for volume 5 will again be authored by members of the subcommittee, e.g. 'The family *Flavobacteriaceae*' (J.-F. Bernardet), 'The genus *Flavobacterium*' (J.-F. Bernardet and J. Bowman), 'The genus *Chryseobacterium*' (J.-F. Bernardet, B. Bruun and C. Hugo) and 'The genus *Elizabethkingia*' (J.-F. Bernardet and B. Bruun). Sadly, it seems that the Editor has been unable to find qualified authors for many taxa, including several members of the *Flavobacterium*–*Cytophaga* group, and thus the corresponding chapters will have to be merely compiled by the Editor based on published data.

Minute 14. Adjournment. The open meeting was adjourned at 16:50.