

## International *Burkholderia cepacia* Working Group

### Minutes

October 16, 1998, 8 to 10 pm

Le Centre Sheraton, Montreal

Dr. LiPuma opened the meeting with comments about the history and purpose of the working group. Introductions with names, affiliations and interest areas were made by each of the attendees.

Dr. Burns reviewed the meeting in Miami, March 1998, including the reports of the taxonomy as presented by Dr. Vandamme, the United States repository data as presented by Dr. LiPuma, the Canadian repository data as presented by Dr. Mahenthiralingam, and the European experience as presented by Dr. Govan and Dr. Bauernfeind. Individual research presentations from the meeting were briefly summarized.

Reports from each of the subgroup discussions in Miami were also summarized. Dr. John Govan (The Virulence Subgroup) described 5 areas of interest to this group: 1. That the issue of whether *B. cepacia* is a pathogen or just a clinical markers of progression in CF parallels the situation with *P. aeruginosa* 10 to 15 years ago. 2. That new infection control issues need to be addressed such as the spread in the ICU with patient exposure to CF patients. 3. Whether predictions can be made about virulence and risk (especially in transplant patients) based on genomovars. 4. Whether the potential industrial and biopesticide uses of *B. cepacia* are helpful or counter-productive towards our efforts to understand more about this organism. 5. Whether the shared sequences with *B. pseudomallei* are suggestive of common mechanisms of pathogenesis.

Dr. Noni MacDonald summarized two issues addressed by the Prevention Subgroup: 1. Infection control as an issue primarily with adult patients and the need to address segregation rather than cohorting. 2. Potential for treatment of *B. cepacia* including antimicrobial therapy (oral, parenteral, aerosol) and susceptibility testing, and the potential role of anti-inflammatory therapy. Several questions were raised with regard to each area including: 1. The role of intermittently colonized and/or PCR positive patients in the transmission of *B. cepacia*, whether there is a difference in the infective dose of organisms based on genomovar, and the role of genomovar in transmissibility. 2. Do *B. cepacia*-infected patients benefit more from directed or empiric therapy and is there a role for chronic suppressive therapy in *B. cepacia*. The performance of a multicenter randomized controlled trial was suggested.

Dr. Peter Vandamme addressed the issues of the Genotype/Phenotype Subgroup from the Miami meeting: 1. There is improved ability to perform biochemical identification of the organism in clinical laboratories based on Deb Henry's studies. 2. The identification of genomovars by other than reference labs is probably not vindicated at this time. 3. Clinical data is needed to correlate specific genomovars with pathogenicity (this might best be served by a standardized questionnaire). 4. Will it be possible to identify non-pathogenic strains either related to biopesticide usage or person-to-person spread in cystic fibrosis? 5. It is time to perform a comparative study of molecular techniques of identification and speciation, looking at

approximately 60 strains to be tested by currently available methods. 6. The possibility of distribution of the experimental panel by the Belgium culture collection (BCCM/LMG) was described. Although no monetary support to the group would be given, they would be willing to distribute the strains for 1300 Belgian francs (\$38 US, \$59 Canadian) non-profit or 1600 Belgian francs (\$47 US, \$72 Canadian) for profit.

David Speert then reviewed the goals as outlined at the Miami meeting:

Recruitment of new investigators to the field

Distribution of the experimental strain panel

Identification of additive and synergistic antimicrobial therapy

Exploration of plant products as potentially active antibiotics

Performance of comparative studies of identification methods

Standardization of methods of genotyping

Development of an animal model of *B. cepacia* infection in CF

Deposition of strains in a national culture collection

Development of a Website

Education of CF caregivers and patients, microbiology researchers, agronomists and botanists re: the significance of *B. cepacia* and the importance of its spread among CF patients

Tom Coenye reported on the development of a Website, which is expected to be available by the 1<sup>st</sup> of November. It will be through the server at the University of Gent and will be listed under his name rather than the International *B. cepacia* Working Group. The pros and cons of a private site under his name rather than a commercial site (which would require outside funding) were debated. The consensus of the group was that a commercial site would better serve the needs of the group and Dr. LiPuma offered to pursue the possibility of funding from biotechnology and pharmaceutical companies.

The topic of education was addressed. Dr. Burns commended the current 1998 NACF meeting as contributing significantly to the education of CF caregivers re: the issues surrounding identification and genotyping, infection control, and virulence. Dr. Gilligan commented on the report by Dr. LiPuma of 90% correct identification of *B. cepacia* sent in to the U.S. *B. cepacia* reference laboratory and repository. Questions were raised about the need to further educate pulmonologists and other CF caregivers about the ongoing efforts to identify genomovars and potential virulence factors. It was recommended by Dr. MacDonald that an explanatory page be sent out by the reference laboratories describing the potential implications of genomovar typing and the fact that these continue to be research tools. A subcommittee was formed to draft this document including Dr. John LiPuma, Dr. Peter Gilligan, Dr. Debbie Toder, Dr. David Haase, Deb Henry, and Dr. Jane Burns.

Dr. George Mallory raised the question as to whether the phenotypes and genotypes of *B. cepacia* that are currently being seen are new strains that have resulted from genetic recombination or if the organism has remained genetically stable. Dr. LiPuma, Dr. Mahenthalingam and Dr. Vandamme responded that strains from as far back as the 1960's have been looked at that this is unlikely to be the case. Dr. Govan raised the question of the source of genomovar III strains, since they are so rare among environmental isolates.

There was a brief discussion of commercially useful strains and their relationship to strains that are seen in CF. Dr. Mahenthiralingam mentioned that by DNA sequence analysis of the *recA* gene at least one commercially useful was very closely related to epidemic genomovar III strains from Australia, Cleveland (USA) and Manchester (England).

Dr. Stull suggested that a group of prototypic pathogenic strains be selected for studies of virulence. Dr. Whitby seconded this request, stating that it is difficult to know which strains might be virulent in CF and thus should be studied. A discussion of the contribution to virulence of both host and bacterial factors ensued. The ultimate consensus of the group was that it was not possible to identify such strains at this time. Dr. Mahenthiralingam and Dr. Speert again emphasized the potential utility of the 30 strains in the experimental panel (that had previously been approved by the IBCWG). Members of the group were offered the opportunity to once again review the panel of organisms. The desirability of identifying a prototype strain such PAO1 from *P. aeruginosa* was noted and Dr. Mahenthiralingam reported that he and Dr. Sokol were planning to perform genetic mapping of a genomovar III prototype strain.

The final discussion of the evening was related to the planning of the 1999 spring meeting that will be held in Banff, Canada. A format was adopted comprising two full days of morning and evening formal sessions with unstructured time to establish collaborations in the afternoons. Suggestions were entertained about the incorporation of individual research presentations and about the balance between subgroup and total group discussions. The details of the meeting will be worked out by the planning committee and transmitted to the working group by the end of November.

The meeting was adjourned at 10 pm.

