Working Virologists and the International Committee on Taxonomy of Viruses (ICTV)

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There is an ongoing dialogue concerning the ability of ICTV to meet the needs of the world virology community in a timely fashion. It has been suggested [3] that ICTV has not consulted all members of the virological community who wish to be involved in the development of virus taxonomy and that ICTV does not ensure all virologists are openly invited to help with ICTV work. Having been a member of the Executive Committee (EC) of the ICTV since 1993, I have had the opportunity to see ICTV in action. It seems that there are two major groups of virologists: 1) those interested in virus taxonomy and nomenclature, and 2) those who are not interested. Sometimes, these divisions follow virus family demarcations. As with many things in life, those who are interested are usually the ones who have to make decisions and who are willing to do the work. I have been to many ICTV meetings at which certain areas of virology have been under-represented because those individuals or groups who said they would do something, in fact did nothing. I have also been the recipient of numerous E-mails extolling the reader to provide information related to mundane (name, address, email address) or timely (responses to comments on proposals, or to provide taxonomic proposals) issues. The ICTV has never intentionally impeded information flow but, rather, has done its best to move ahead evolving and exciting areas of virology by using the most up-to-date tools at its disposal, given the meagre resources that are available. The ICTV is also committed to publishing a list of all known viruses species approximately every three years.

There are new viruses emerging all the time and we usually see these first mentioned in the literature. From the chaos of individuals creating their own favorite name for a new virus (TT virus is an example) to international disagreements on nomenclature (Sin Nombre virus is a great example of this), ICTV has tried to develop a set of rules and regulations to help investigators name and suggest classification for new viruses and to provide guidelines for the nomenclature and taxonomy of all viruses. The speed at which this is done rests with individuals. Two recent examples of how the ICTV facilitates this work are provided here.

The Sixth Report of the ICTV, published in 1995, listed a number of unassigned viruses in addition to those classified at that time. The unassigned viruses included numerous small RNA viruses that infect various insect species and were considered to be possible members of the family *Picornaviridae*. This list included Cricket paralysis virus, Drosophila C virus and Gonometa virus. They were generally referred to as "picorna-like

viruses” because they shared many morphological and physical properties with mammalian picornaviruses, including a positive-sense single-stranded RNA genome with a genome-linked protein at the 5′ end and polyadenosine residues at the 3′ end. There were several reasons why the taxonomic status of these viruses had not been established. Because of the structure of the ICTV, broadly organized around the Classes of hosts (e.g. vertebrates, invertebrates, bacteria and so on), members of families of viruses that fit into more than one of these hosts sometimes get orphaned. Because there were relatively few virologists working with these viruses, progress on genome sequencing was slow and virologists working with picornaviruses of vertebrates had little interest in investigating these insect virus. It was known that there were a number of insect viruses that were similar to picornaviruses so they were simply lumped there, recognizing that not enough information was available to assign them to any particular genus or to create a new genus. In fact, these viruses were unofficially known as “napicornaviruses” (non-assigned picornaviruses) for a time! In March of 1998 at the 27th meeting of the ICTV EC, proposals were approved to create a new unassigned genus comprising all viruses previously listed as unassigned invertebrate picornaviruses, and to name this new genus “Cricket paralysis-like viruses”. This was reported on the ICTV web site (<http://www.ncbi.nlm.nih.gov/ICTV/Taxpro98.html>) and in *Virology Division News* [4]. As Chair of the Invertebrate Virus Subcommittee, I contacted a few virologists working with these invertebrate viruses and suggested that they form a Study Group to consult colleagues, to sort out what they believed was the best taxonomic grouping for these viruses and to submit a formal taxonomic description to the ICTV. By the middle of March 1998, the Study Group under the leadership of Peter Christian was in place and by the end of March, a formal description of the new genus *Cricket paralysis-like viruses* was completed and submitted to the Secretary of the ICTV. Because the virologists directly working with these viruses were now involved in the Study Group, rapid progress was possible on the development of the taxonomic proposal that led to the inclusion of this new genus in the Seventh Report of the ICTV [1]. The Cricket paralysis-like virus Study Group has since developed an acceptable name for this group of viruses and submitted this and further proposals concerning other small non-occluded RNA viruses to the ICTV EC at the midterm meeting in April 2001.

The second example of the ability of the ICTV to coordinate and help develop the taxonomy of new viruses includes another unusual group of invertebrate viruses that have double stranded circular DNA genomes, the ascoviruses. At the 1997 ICTV midterm meeting, I reported that a new Study Group, under the direction of Brian Federici, had been established to consider the taxonomy of ascoviruses, and had proposed a tentative classification. At the midterm meeting in 1998, the ICTV EC received and approved taxonomic proposals for the establishment of the family *Ascoviridae* and the complete description of a genus and four species, leading to the inclusion of this new family of viruses in the Seventh ICTV Report [2]. The taxonomic proposals for the Cricket paralysis-like viruses and the ascoviruses were prepared and submitted to meet the December 1998 deadline for inclusion in the Seventh Report of the ICTV.

To me, these represent success stories, as new taxonomic groupings were created by working virologists. However, they depended largely on the strong leadership provided by Peter Christian and Brian Federici, to form the Study Groups and to move them quickly to make decisions. It would have been impossible for the ICTV EC to do this task but at the same time, it was very important that the ICTV structure was in place to guide the Study

Groups. Each of us has a responsibility to respond when we think there is an issue or problem in an area in which we have some expertise. The ICTV is very willing to consult, guide, and publicize issues. ICTV has tried very hard to provide the mechanisms for virologists to communicate with themselves and with the ICTV. It is up to the individuals to move forward with the science, and to provide the material for ICTV to work with by providing the most comprehensive and up-to-date information for virus taxonomy and nomenclature!

References

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