

The ATCC Plant Virus and Antiserum Collection: An Evaluation by Researchers

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In 1986, a survey was conducted by the ad hoc Plant Virus Advisory Committee (T. O. Diener, J. M. Kaper, M. R. McLaughlin, G. Mink, H. E. Waterworth, D. Wilkinson, and I) to examine the interaction between workers with plant viruses and the collection resources at the American Type Culture Collection in Rockville, Maryland. The response (more than 30%) was greater than anticipated—more than 100 investigators in various fields of plant virology answered the questionnaire. The strong interest, constructive criticism, and expressions of support demonstrate an untapped potential of the ATCC plant virus and antisera collections and suggest avenues of expansion for services to plant virologists.

The majority of researchers who replied to the survey are plant pathologists and/or virologists, work at the state or federal level, and are assigned research and/or teaching positions. Most investigators use 5–10 ml of antisera per year and work with a variety of five to 10 distinct antisera over the same time period. The number of researchers who obtained cultures from or deposited cultures with the ATCC during the past 5 years was compared with the number obtaining cultures from or depositing cultures with colleagues during the same period. The figures for the ATCC were: 39 researchers obtained a total of 147 virus cultures and 48 obtained 243 different antisera, whereas 10 deposited 62 virus cultures (one researcher deposited 50) and eight deposited nine different antisera. The figures for colleagues were: 75 researchers obtained a total of 530 virus cultures and 82 obtained 645 antisera, whereas 71 deposited 515 virus cultures and 71 deposited 685 antisera.

When researchers were asked why they chose to acquire cultures from colleagues, 51 responded that the ATCC did not have the specific cultures needed. (Significantly, while the survey revealed a need for the ATCC to expand its collection, it also provided that opportunity—73% of the respondents volunteered to donate viruses and 56% offered to provide antisera.) Eleven replies indicated a lack of awareness that the ATCC could supply the materials being sought from colleagues. A few scientists felt that the ATCC should better advertise its services in order to reach more plant virologists, and several suggested that the ATCC should publish more frequent updates of available materials. Sixty-one respondents noted that it was faster and more convenient to deal with colleagues, and 45 indicated that such a choice was a matter of economics. Other reasons for turning to colleagues for cultures were: 1) access to more complete background information on the culture, 2) a need to compare different antisera, 3) "no permit necessary," 4) a need for viruses whose viability suffers from drying, and 5) a need for viruses that are best isolated from freshly infected tissue.

Of those scientists who answered the question of satisfaction with ATCC services, 75% were satisfied. Some were dissatisfied because viruses from the ATCC were "not infectious." Others were unhappy because the culture they wanted was not available. The third most common complaint was that the antiserum obtained was poor or had a low titer. Other complaints included the length of time it took to receive a virus (because of the permit requirement), mailing tube problems

with cultures shipped overseas, and, in general, some administrative problems.

The survey question concerning which viruses should be added to the collection brought 60 different suggestions, with additional barley yellow dwarf virus isolates mentioned most frequently. The need for additional cDNA clones was expressed (23 different clones were named), with cucumber mosaic virus and luteovirus clones cited most often. Several scientists expressed the need to expand the collection with more recently characterized strains. One concern was that the ATCC should ensure the preservation of virus isolates and antisera of retiring plant pathologists for future use.

The additional ATCC service suggested most often was providing monoclonal antibodies to plant viruses. Another frequent suggestion was to supply ELISA kits that would be group-specific or contain small amounts of antisera to type viruses. Additional suggestions concerning antisera were to make available labeled or unlabeled gamma globulin purified from antisera or to produce "custom" antisera on a fee basis.

Information services proposed by respondents included the establishment of a referral service that would indicate where antisera unavailable at the ATCC could be obtained, or a list of researchers with descriptions of the viral diseases each is studying. Others suggested that the ATCC publish serological protocols and recommend procedures for using individual antisera. Some requested that the antisera descriptions include more information, e.g., the healthy host reaction, ELISA titers, and propagation species. While some researchers felt that information on alternative commercial sources should be made available, others felt that the ATCC should produce some resources commercially, realizing a need for ample antisera supplies for routine and regulatory work as well as for continuing the reference collection for researchers.

The length of time involved in obtaining a virus culture from the ATCC was a concern among some scientists, who felt a permit should not be required for a virus that originated in the United States and is widely endemic or for a virus that has been previously documented as present in a state. Another suggestion was for a list of virologists approved to receive viruses without applying for permits.

Overall, results of the survey have been extremely beneficial in assessing the needs of plant virus researchers. The strong response to the questionnaire indicates a great deal of support and enthusiasm for the ATCC plant virus and antisera collection. Many investigators emphasized that the services the ATCC provides are essential and that the values of these collections cannot be overestimated. Therefore, the Plant Virus Advisory Committee has selected, in consort with the ATCC, individual scientists to act as "experts" for evaluation of collections within each plant virus group. These individuals are now actively working with the ATCC to encourage contributions of important viruses and antisera to the collection. Plant virologists are encouraged to contribute virus cultures, cDNA clones, and antisera to the ATCC, as others have done in the past, for the benefit of the scientific community.