

This Week's Citation Classic

Witter R L, Nazerian K, Purchase H G & Burgoyne G H. Isolation from turkeys of a cell-associated herpesvirus antigenically related to Marek's disease virus. *Amer. J. Vet. Res.* 31:525-38, 1970. [US Dept. Agriculture, Regional Poultry Res. Lab., East Lansing, MI]

A new herpesvirus was isolated from normal turkeys in three flocks. This cell-associated turkey herpesvirus (HVT) grew readily in chicken and duck cell cultures, was recoverable from lysates of infected cells, was non-pathogenic for chickens and turkeys, and was serologically related to Marek's disease herpesvirus. [The SCI® indicates that this paper has been cited over 175 times since 1970.]

Richard L. Witter
United States Department of Agriculture
Science and Education Administration
Agricultural Research
Regional Poultry Research Laboratory
East Lansing, MI 48823

October 18, 1979

"After the recent isolation of the Marek's disease herpesvirus (MDV) by our group at the Regional Poultry Research Laboratory at East Lansing, I decided to determine whether avian species other than chickens could be reservoirs of MDV infection. On September 24, 1968, we obtained a number of turkeys from a commercial flock located for us by Joe Ostendorf, a veterinarian in Milford, Indiana. We inoculated several types of cell cultures with fresh tissues. On October 3, I observed in chicken kidney cultures herpes-type virus plaques that were clearly different from those of MDV. My colleague, Kev Nazerian, observed herpesvirus particles in the infected cells by electron microscopy but also noted that the particles differed from those of MDV. Surprisingly, we found that chickens inoculated with infected cultures developed infection but no illness. Moreover, with my colleagues, Harvey Burgoyne and Graham Purchase, I found that this turkey isolant was related antigenically to MDV on the basis of agar gel precipitin, immunofluorescent, and serum neutralization tests.

"While these studies were in progress, I attended the 10th Cyanamid Poultry Pathologists Conference at Princeton, New Jersey, November 19-22, 1968, where Dave Anderson, then at the University of Wisconsin, told me that his student, H. Kawamura, had been working for some months on herpesviruses isolated from turkey kidney cell cultures. On December 10, Kawamura generously sent me an isolant that had been passaged 21 times in turkey kidney cells and obviously predated my own. This Wisconsin isolant proved identical to the viruses we had isolated. But, to my knowledge, neither Anderson nor Kawamura at that time recognized the association between turkey herpesvirus and MDV which was to prove so important.¹

"I presented results of our studies at the Northeastern Conference on Avian Diseases in Orono, Maine, in June 1969. In the discussion of the paper, Bruce Calnek pointed out that our original abbreviation for turkey herpesvirus, THV, had been preempted for turkey hepatitis virus by Tzianabos and Snoeyenbos.² Thus, we proposed the somewhat unwieldy name of herpesvirus of turkeys (HVT) in order to resolve this problem.

"As our work progressed, I pointed out to other colleagues in our laboratory who were evaluating potential Marek's disease (MD) vaccines that HVT had some of the characteristics of a vaccine virus and urged them to try a protection experiment. Subsequently, a series of studies by Graham Purchase, Bill Okazaki, and Ben Burmester established that HVT without modification is a highly effective and practical vaccine against MD.³ The widespread and successful application of HVT as a vaccine for the control of MD in commercial chicken flocks during the past eight years not only resulted in large financial benefits to agriculture but also established HVT as a useful model for immunoprophylaxis of viral-induced neoplasia, and undoubtedly led to the frequent citation of our paper."

1. Kawamura H, King D J, Jr. & Anderson D P. A herpesvirus isolated from kidney cell culture of normal turkeys. *Avian Dis.* 13:853-63, 1969.
2. Tzianabos T & Snoeyenbos G H. Some physicochemical properties of turkey hepatitis virus. *Avian Dis.* 9:152-56, 1965.
3. Purchase H G, Okazaki W & Burmester B R. Long-term field trials with the herpesvirus of turkeys vaccine against Marek's disease. *Avian Dis.* 16:57-71, 1972.