

Detection of Antibodies to Polyomavirus SV40 in Two Central European Countries

Butel J. S.¹, Wong C.¹, Vilchez R. A.², Szücs G.³, Dömök I.⁴, Kříž B.⁵, Slonim D.⁶, Adam E.¹

¹ Department of Molecular Virology and Microbiology and

² Department of Medicine, Baylor College of Medicine, Houston, TX, USA

³ Regional Laboratory of Virology of Baranya County Institute of National Public Health Service, Pécs, Hungary

⁴ National Institute of Public Health, Budapest, Hungary

⁵ Charles University, 3rd Medical Faculty, Prague, Czech Republic

⁶ Institute of Sera and Vaccines, Department of Virology, Prague, Czech Republic

Summary

Simian virus 40 (SV40) is significantly associated with some human cancers. However, the frequency of tumor-associated virus detection differs by geographic regions, so it is important to understand the status of SV40 infections in different populations. Poliovaccines potentially containing live SV40 were used in well-documented nationwide vaccination programs in Hungary and the Czech Republic that are reported here. We analyzed serum samples from periodic surveillance programs in those two countries for antibodies to SV40 using a specific plaque reduction neutralization assay. The prevalence of antibodies was between 1.3 and 8.7% in Hungary and from 1.0 to 4.0% in the Czech Republic. Females had a higher rate of antibodies than males, reaching in certain age groups 15.6% in Hungary and 8.3% in the Czech Republic. Antibodies to SV40 were found in similar proportions in both countries among persons not directly exposed to poliovaccines and subjects vaccinated in the era of SV40-free vaccines. Complexities and limitations of current serological approaches to epidemiological studies of SV40 in humans are discussed. These data suggest that SV40 may be present in these populations and emphasize the importance of follow-up studies to determine the pathogenesis of infections by this emerging human agent.

Key words: Simian virus 40, poliovaccine, neutralizing antibody

Address for correspondence: J. S. Butel, Department of Molecular Virology and Microbiology, Baylor College of Medicine, One Baylor Plaza, MS: BCM385, Houston, TX 77030, USA. E-mail: jbutel@bcm.tmc.edu