



Editorial

The interwoven story of the small DNA tumor viruses

Adeno, polyoma and papilloma viruses: their study has led to many scientific discoveries far beyond what their simple, ordered facades could have foretold. Indeed they have helped unravel some of the most complex aspects of the host cells they infect, from signal transduction cascades, to DNA replication, to transcription. And how is that? Certainly their study reaped the benefits of the recombinant DNA revolution and many dedicated and insightful minds. But there is more to this story. This is a story of three families of viruses, and three families of scientists who studied them, all interwoven together in time and place, each virus revealing threads of knowledge that only when woven together provided the scientific world incredible new insights. This interwoven history is no better told than in the discoveries of p53 and pRB, two tumor suppressors that we know today to be at the root of cancer. At the beginning though, they were merely co-immunoprecipitated bands on protein gels, bands common to those working on the oncoproteins of SV40 and adenovirus, then, low and behold, papillomaviruses too. The study of these viral oncoproteins and their associated cellular factors led to so much more since then, to E2Fs, the cell cycle, ubiquitin ligases, apoptosis. The many common threads of knowledge gained from the study of

these three viruses have provided us knowledge on many fronts of biology. In this issue of *Virology* we have brought the many stories together, to tell of the rich past, the exciting present, and the bright future of this field. We are very fortunate to have many of the leaders of the field contribute to this issue, including Dr. Harald zur Hausen, who was just honored with the 2008 Nobel Prize in Medicine for his discovery of the role of human papillomaviruses in cervical cancer (the prize shared with Drs Françoise Barré-Sinoussi and Luc Montagnier, for their discovery of HIV). I am sure you will enjoy the contributions of the many experts who devoted their time and effort to bring you this special issue. To promote access to these contributions, Elsevier has agreed to make every paper in this issue freely available on the web.

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Complete Cover Legend: Shown are images of adenovirus (top center), polyomavirus (bottom right) and papillomavirus (bottom left). Images were created by Dr. Jean-Yves Sgro, Ph.D., Senior Scientist, Institute for Molecular Virology, University of Wisconsin-Madison (jsgro@wisc.edu, <http://virology.wisc.edu/virusworld>) with visualization software VMD: <http://www.ks.uiuc.edu/Research/vmd/> (Humphrey et al. J. Molec. Graphics, 1996, vol. 14, pp. 33–38). The following coordinate information was accessed through VIPERdb2: <http://viperdbscripps.edu/> (Carrillo-Tripp et al., Nucleic Acids Research 2008; doi:10.1093/nar/gkn840): for adenovirus: PDB ID: 2bld; (Fabry et al., 2005, Embo J. 24:1645–1654); for polyomavirus: PDB ID: 1sid (Stehle and Harrison 1996, Structure 4:183–194); for papillomavirus: PDB ID: 110t (Modis et al., 2002, EMBO J. 21:4754–62). For adenovirus, spike proteins are not visualized. For papillomavirus, the carbon-alpha backbone coordinates were converted to full coordinates with software Sybyl (Tripos, Inc.).