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Polyomavirus BK and prostate cancer: A complex interaction of potential clinical relevance

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Several studies associating BK polyomavirus (BKPyV) and prostate cancer (PCa) suggested that this virus may exert its oncogenic activity at early stages of cancer development. The BKPyV oncogene, the large T antigen (LTag), has frequently been detected in areas of proliferative inflammatory atrophy, which is considered a precursor lesion leading to prostatic intraepithelial neoplasia and overt PCa. In a recently updated systematic review, the presence of BKPyV was significantly higher in PCa tissues than in healthy control tissues, providing evidence for a link between BKPyV infection and cancer risk. In addition, recent original investigations highlighted an association between expression of the virus and the clinical course of PCa. For example, by studying immune responses elicited against BKPyV LTag, a significant association between LTag positive cancer lesions and a peculiar regulatory profiling has been observed in PCa patients with evidence of disease recurrence after surgical radical prostatectomy. Lastly, a study carried out in a larger cohort of patients undergoing radical prostatectomy revealed the IgG response against LTag as an independent predictor of disease recurrence. Although a full picture of the mechanisms potentially responsible for the involvement of BKPyV in PCa is not available yet, continuing work on this topic should help to refine the potential role of BKPyV in PCa patients, perhaps revealing unsuspected associations with the clinical course of this disease.

Biography

Maurizio Provenzano was graduated as MD from La Sapienza University of Rome and obtained his specialization in Medical Oncology at the University of Milan and his PhD in Virology at the University of Padua. He is the Head of Research at the Department of Urology, University Hospital of Zurich and Lecturer at the Faculty of Medicine, University of Zurich. Since 2007 he has been Member of the Cancer Network of Zurich. He has published more than 50 papers and has been serving as an Editorial Board Member of reputed journals. He has received several acknowledgments for his efforts in cancer virology.

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