Online journal ISSN - 1676-5680
GMR Genetics and Molecular Research
EVOLUTION AND TECHNOLOGY

Bovine papillomavirus DNA in milk, blood, urine, semen, and spermatozoa of bovine papillomavirus-infected animals

C.J. Lindsey[1], M.E. Almeida[1], C.F. Vicari[1], C. Carvalho[2], A. Yaguiu[2], A.C. Freitas[3], W. Beçak[2] and R.C. Stocco[2]

[1]Departamento de Biofísica, Universidade Federal de São Paulo, São Paulo, SP, Brasil
[2]Laboratório de Genética, Instituto Butantan, São Paulo, SP, Brasil
[3]Departamento de Genética, Universidade Federal de Pernambuco, Recife, PE, Brasil

Corresponding author: C.J. Lindsey
E-mail: lindsey@biofis.epm.br

Genet. Mol. Res. 8 (1): 310-318 (2009)
Received December 15, 2008
Accepted January 20, 2009
Published March 17, 2008

ABSTRACT. Papillomavirus infection in bovines is associated with cutaneous papillomatosis on the hide, udders and other epithelial tissues, as well as in oral respiratory, alimentary and urinary tract mucosa. Bovine papillomavirus (BPV) is also considered the etiological agent of esophageal tumors and the malignant bladder tumors that characterize the clinical condition associated with chronic enzootic hematuria. After infective viral DNA was found in cattle blood and BPV1, 2 and 4 DNA in cattle reproductive and embryonic tissues, we looked for and found BPV DNA in blood, milk, urine, seminal fluid, and spermatozoa of BPV-infected animals. Peripheral blood lymphocyte cultures from BPV-infected animals had high rates of chromosome aberrations, including radial rearrangements

that signal oncogenic potential and viral interaction with telomeric regions. The finding of BPV DNA in body fluids and tissues other than the epithelium demonstrates co-infection of other tissues or cell types by papillomavirus and shows the potential role of lymphocytes, seminal fluid and spermatozoa in BPV transmission. Our findings reinforce a peremptory need for prophylactic and therapeutic instruments to curtail this disease in bovine livestock.

Key words: Bovine papillomavirus; Blood; Milk; Urine; Semen; Spermatozoa

