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Abstract (publication only)

**The human bocavirus is associated with lung- and colorectal cancers and persists in solid tumours**

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**Background:** The human bocavirus (HBoV) is the second human pathogenic parvovirus. It causes respiratory infections and gastroenteritis. Some autonomous animal parvoviruses and also some human non-autonomous parvoviruses are known to persist and even integrate into the host genome resulting in transformation of the infected cells and eventually contribute to the multi-step development of cancer. Surprisingly, also HBoV persists in a so far unknown percentage of patients without causing clinical symptoms beyond those of the primary infection. **Objectives:** The aim of the present study was to analyze the role of HBoV in lung- and colorectal cancers. **Methods:** Therefore, formalin-fixed paraffin embedded archived tumor samples were screened for HBoV DNA by PCR, Southern blotting, and sequencing. Positive tissues were further subjected to FISH analyses specifically detecting HBoV DNA in the infected cells. **Results:** In total, 11 of 60 (18.3%) lung and 9 of 44 (20.1%) colo-rectal tumors were tested positive for HBoV DNA, confirmed by sequencing and/or Southern-blotting. HBoV DNA thereby is present in the nuclei of infected cells, either in single or multiple copies, and appears also to form filaments. **Conclusions:** The data show that HBoV is present in lung and colorectal cancers. This gives rise to the hypothesis that the virus plays an active role in cancer by interactions with the host genome, or contributes to cancer development indirectly by inducing a persisting inflammation, as other DNA viruses like the human hepatitis B virus do. The occurrence of HBoV-DNA-filaments could confirm the postulated- or rolling- hairpin replication mechanism.