Xenotropic murine leukemia virus-related virus may not be associated with human prostate cancer

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The xenotropic murine leukemia virus-related virus (XMRV) which has previously been linked to prostate cancer has been found to have a dramatically lower prevalence among German prostate cancer patients, if any. Contrary to some reports, which have found XMRV in 40% of cases in patients in the US with familial prostate cancer, research published today in BioMed Central's open access journal, *Retrovirology* has found no link between the two conditions in a large study of German prostate cancer patients.

The experimental research was undertaken by a team from the Robert Koch Institute and the Charité in Berlin, Germany, led by Norbert Bannert and Reinhard Kurth. They used real-time PCR and nested PCR techniques to genotype the RNase L gene (an interferon regulated antiviral defence gene) and detect the presence of the XMRV virus in samples collected from 589 prostate cancer patients between the years 2000 and 2006. Some samples were also tested for the presence of Env antibodies directed against XMRV using an ELISA.

Knowledge relating to the genetic susceptibility and risk factors of prostate cancer increase the likelihood of early detection and successful treatment of the disease. Previously, the HPC1 locus (hereditary prostate cancer locus-1) has been identified as a hereditary factor associated with a predisposition to prostate cancer. The gene RNaseL is found within this locus. The RNase L gene codes for an endoribonuclease that is

involved in the interferon-regulated antiviral defence pathway. Certain polymophisms in this gene in which the enzyme product has reduced activity have been reported by others as being linked to increased risk of prostate cancer (presumptively due to XMRV-infection) in the US and Japan.

In the current study, from the 589 prostate tumor samples, 76 were found to be homozygous for the previously reported RNase L presumptively XMRV-susceptible Q (R462Q) genotype, however, neither DNA nor RNA fragments of XMRV were detected in samples collected from the prostate cancers. ELISA results show that none of the patients had antibodies directed against XMRV, suggesting that in German prostate cancer patients at least, there is no evidence for XMRV infection or XMRV-linked prostate cancer even in individuals with the RNase L XMRV-susceptible Q genotype. According to Bannert, "a possible geographical restriction of XMRV and its associations with cases of prostate cancer should be studied closely", adding that "the oncogenic potential of the virus must be thoroughly investigated in order to establish whether or not it can trigger the development of prostate cancer."

More information: Lack of evidence for xenotropic murine leukemia virus-related virus (XMRV) in German prostate cancer patients, Oliver Hohn, Hans Krause, Pia Barbarotto, Lars Niederstadt, Nadine Beimforde, Joachim Denner, Kurt Miller, Reinhard Kurth and Norbert Bannert, *Retrovirology* (in press), www.retrovirology.com/

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