

## Presence of Human Herpesvirus-6 Genomic Sequence in DNA Samples of Patients with Hashimoto's Thyroiditis in Latvian and Italian Patients

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**Introduction.** HHV-6 is lymphotropic, immunomodulating virus characterised by widespread tissue tropism and has been found also in the thyroid gland tissue. Infection with HHV-6 is a global concern, and has been correlated to many diseases. Recently, Caselli, et al. have reported that HHV-6 infection may play a role in the pathogenesis of Hashimoto's thyroiditis (HT) [Caselli, et al., 2012].

**Aim.** This study is aimed at estimating HHV-6 frequency and type in clinical samples obtained from HT patients belonging to the Latvian and to the Italian population.

**Materials and methods.** Clinical samples included: peripheral blood mononuclear cells (PBMC) and thyroid fine needle aspirates (FNAs) derived from 12 HT patients enrolled at S. Anna Hospital in Ferrara (Italy), and whole blood and thyroid gland tissue from 12 HT patients received after thyroidectomy from Rīga Eastern Clinical University Hospital, Clinic "Gaiļezers". Total DNA was extracted from all samples and tested at the Section of Microbiology of the University of Ferrara, using a nested polymerase chain reaction (nPCR) specific for the detection of HHV-6 U42 gene, as previously described [Caselli, et al., 2012]. DNA samples negative for HHV-6 specific sequences and water controls were included in each experiment to exclude the possibility of contamination during nPCR. HHV-6 type characterization was obtained by restriction endonuclease analysis with the enzyme Hpa I (BioLabs), performed on the nPCR 404 bp amplification product. Briefly Hpa1, digestion originates two fragments (328 pb and 76 pb) in HHV-6 type A, whereas it does not cut the HHV-6 type B amplicon. The amplified DNA with the expected sizes was analysed in 1.5% agarose gel with ethidium bromide staining and analysed using Bio-RAD Gel Doc™ Ez Imager.

**Results.** The results showed that the frequency of HHV-6 presence does not differ significantly in DNA samples derived from thyroid tissue between the Latvian and Italian patients. In fact, HHV-6 genomic sequence was detected in 12 / 12 Latvian and in 10 / 12 Italian thyroid tissues. In contrast, the virus was detected in 1 / 12 whole blood DNA sample from Latvian patients, and in 11 / 12 PBMC DNA from Italian patients.

The HHV-6 positive samples were tested to characterize the viral type by restriction enzyme analysis of U42 nested PCR amplification product, HHV-6 type B was found in both blood and tissue samples of Latvian patients, whereas in Italian patients type A was detected in FNA specimens and type B in PBMC.

**Conclusion.** The results confirm that HHV-6 has a true tropism for thyroid gland in HT patients, being present in almost all the samples tested. These data, therefore, strengthen the notion that this virus might be associated to the development of HT disease. Important differences were, however, observed regarding the virus frequency of detection in peripheral blood and the virus type present in the thyroid gland.

The observed differences might be due to difference in collection of samples and patients, or rather they might be due to true differences in the incidence of type A and B infection, and this aspect may deserve further attention and studies.