TAMPEREEN YLIOPISTO **UNIVERSITY OF TAMPERE**
LÄÄKETIETEEN YKSIKKÖ SCHOOL OF MEDICINE

Paediatric Research Centre

Coeliac Disease Study Group

Immunological markers of coeliac disease latency and transglutaminase-2 (TG2) specific IgA deposits

The Coeliac Disease Study Group, University of Tampere, Finland, provides as a service a staining of frozen small bowel biopsy specimens using four different monoclonal antibodies (CD3 positive T cells, alpha-beta T cell receptor bearing lymphocytes, gamma-delta T cell receptor bearing lymphocytes, expression of HLA-DR). The statement includes evaluation of the DR expression and the intraepithelial densities (cells/mm epithelium) of the different T cells. Aberrant upregulation of the class II molecule indicates inflammation, increased T cell densities intraepithelial infiltrativity. Increased densities of gamma-delta T cells are often seen in coeliac disease, developing, active and treated. The intraepithelial density of alpha-beta T cells react in coeliac disease fast on ingested gluten, gamma-delta T cells very slow. The sum of alpha-beta and gamma-delta T cell densities forms an internal staining control, the sum should be in the order of the density of all T cells (CD3).

The price is Euro 152.

Determination of TG2-specific IgA deposits is made from frozen sections by double-staining. All IgA is stained by direct immunofluorescence method and co-localization of IgA and TG2 is detected by double-staining both IgA and TG2. In coeliac disease IgA deposits are present along the villous and crypt epithelium and around the vessels.
Determination of small-bowel mucosal TG2-specific IgA deposits is a sensitive tool in finding early-stage celiac disease. Deposits were found in 96%, increased densities of CD3+ intraepithelial lymphocytes (IEL) in 62% and gamma-delta+ IEL´s in 71% of the patients in our studies. Mucosal autoantibodies are accurate in detecting coeliac disease even in seronegative patients.

The price is Euro 150.

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Please inform beforehand the Coeliac Service Lab when biopsies are sent (phone +358 3 3551 8412, office times)

Handling of the biopsy specimen
The biopsy specimen should be freshly embedded in OCT-compound (Sakura Finetek Europe, B.V., Zoeterwoude, The Netherlands) and frozen in liquid nitrogen (or dry ice) as follows: Put a drop of OCT on aluminium foil and freeze it briefly in liquid nitrogen (fig 1-2). Put the biopsy specimen on the partly frozen OCT and a new drop of OCT on the biopsy and freeze again (fig 3-4). Thus the fresh biopsy specimen is completely covered with frozen OCT (fig 5). The specimen should not be frozen separately. Close the biopsy specimen in a small plastic bag to prevent it from drying during the storage at –20 C or –70 C (fig 6).

Sending of the biopsy specimen
The specimen prepared as above should be packed in dry ice. Please ensure that the specimen will not melt during the delivery, nor should it be crushed. Send the specimen by courier mail to

University of Tampere, School of Medicine
Building FM3, coeliac disease laboratory
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