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Human germinal center–associated lymphoma (HGAL) expression in B-cell follicles in hyperplastic lymph nodes and malignant follicular lymphomas

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CD10, BCL6 and BCL2 are germinal center markers useful in recognizing malignant lymphomas of follicular center cell derivation by means of immunohistochemistry. Recently, human germinal center–associated lymphoma (HGAL) gene (also known as germinal center expressed transcript-2 or GCET2) has been proposed as an alternative marker which can be detected in benign and malignant follicles. The aims of our study were to evaluate immunoreactivity for HGAL in 85 cases characterized by follicular lesions, which were all studied histologically, by immunohistochemistry for CD10, BCL6, BCL2 and Ki67 antigen expression, and molecularly with PCR for B cell clonality and BCL2 translocation. Cases were classified as reactive follicular hyperplasia (4 cases), or follicular lymphoma (81 cases, with the following subtypes: nodal-65 cases; cutaneous-6 cases; associated with diffuse large B cell lymphomas-10 cases). Mean percentage of HGAL positive cells was 64±22 (range, 8-100); no differences were found between reactive and neoplastic lesions or among different malignant subtypes or WHO grades. However, HGAL immunoreactivity appeared significantly lower when BCL6 was weakly expressed ($P<0.05$) and when BCL2 was highly expressed ($P<0.05$) and particularly in cases with "in situ follicular lymphoma"; no correlations were found between CD10 and HGAL expression. In addition, HGAL expression was higher in cases with PCR monoclonality ($P<0.05$). These results confirm that HGAL can be used in the immunostaining of follicular lesions, although it does not have any role in the distinction between reactive conditions and malignant lymphomas. At the present time, there are not explanations for the direct correlation between HGAL and BCL6 and the inverse correlation between HGAL and BCL2; further studies are needed.

Key words
HGAL, germinal center, malignant lymphomas, histology, immunohistochemistry, PCR