CORRESPONDENCE

NATURAL KILLER ACTIVITY IS NOT DEPENDENT ON THE CD3-Ti T-CELL RECEPTOR ANTIGEN COMPLEX

To the Editor:

Recently, Oshimi et al. reported that T-cell-associated antigens (CD3 and Ti) are involved in the regulation of large granular lymphocyte (LGL)-mediated cytolytic activities. We describe here the existence of LGLs with high cytolytic activity that lack T-cell receptor antigens recognized by CD3 and Ti (WT31) monoclonal antibodies. Cells with these properties belong to an extremely small portion of the natural killer (NK) cell subset and differ appreciably from the cells that frequently are reported to be characteristic of the NK cell leukemias.

Analysis of the lymphocytes separated from the heparinized whole blood of four persons with LGL leukemia by means of a density-gradient technique (Ficoll/sodium metrizoate) is described. Monoclonal antibodies corresponding to the cluster differentiation (CD) numbers listed in Table 1 were obtained from either commercial sources or through the courtesy of Ortho Diagnostic Systems K.K. (Tokyo), Fujisawa Pharmaceutical Co. (Osaka, Japan), or Japan Scientific Instruments (Tokyo). Lymphocyte cell-surface antigens were analyzed by a fluorescence-activated cell sorter (FACS IV; Becton Dickinson, Mountain View, CA) using a panel of monoclonal antibodies.

Table 1. Classification of NK-Cell Leukemia/Lymphoma by Clinical, Immunophenotypic, and Genotypic Analysis

<table>
<thead>
<tr>
<th>Type</th>
<th>Clinical Course</th>
<th>Immunophenotype</th>
<th>Genotype (TcR)</th>
<th>Cell Lineage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Aggressive</td>
<td>CD2 CD3 Ti CD4 CD8 CD38 Ia CD19 CD11 CD16 HK-1 HK-1</td>
<td>G NK</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>Chronic</td>
<td>CD2 CD3 Ti CD4 CD8 CD38 Ia CD19 CD11 CD16 HK-1 HK-1</td>
<td>R T (NK-like)</td>
<td></td>
</tr>
</tbody>
</table>

Abbreviations: CD, cluster of differentiation; G, germ line; R, rearranged.

Fig 1. Cytolytic activities of peripheral blood mononuclear cells in patients with type I (A) and type II (B) LGL leukemia, and of a normal healthy adult (C) against K562 (●—●), RPMI 8402 (▲—▲), Moth 3 (●—●), Raji (○—○), Daudi (△—△), and normal T-cell blasts (□—□).

patibility complex (MHC) restricted cytolytic activity. The LGLs of type II leukemia, which are carrying Ti but no CD3 antigen on their cell surfaces, also possess high cytolytic activity for NK-sensitive cell lines, K562, RPMI 8402, and Molt 3.

There are several reports describing the existence of NK cells or LGLs without the CD3-Ti TcR complex in patients with leukemias or persons without evidence of any underlying hematologic disorder. Lanier et al. have clearly demonstrated the existence of non-T, non-B NK cells with high cytolytic activities without the expression of CD3-Ti TcR complex on their cell surfaces. Recently, we have successfully established an NK cell line with the same phenotype, cytolytic function, and genotype as the type I LGL leukemic cells (unpublished observation). On the basis of these observations, we conclude that some NK cells do not require the expression of the CD3-Ti complex and TcR genes for non-MHC restricted killing activity.

REFERENCES

7. Takahashi N, Noma T, Honjo T: Rearranged immunoglobulin heavy chain variable region (VH) pseudogene that deletes the second complementarity-determining region. Proc Natl Acad Sci USA 81:5194, 1984

RESPONSE

To the Editor:

We read with interest the data presented by Drs N. Imamura and A. Kuramoto, and we would like to clarify one point.

As indicated in the first sentence of the abstract of our report, we described the role of the T-cell antigens in granular lymphocyte proliferative disorders (GLPD) of T-cell lineage, but not of natural killer (NK)-cell lineage. Of course, we were aware of some reports describing NK-cell-derived GLPD with strong cytotoxicity and absent CD3/TCR complex, as briefly mentioned in the introduction of our report.

REFERENCES


From www.bloodjournal.org by guest on November 15, 2017. For personal use only.
Natural killer activity is not dependent on the CD3-Ti T-cell receptor antigen complex [letter]

N Imamura and A Kuramoto