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Title	DISTRIBUTION OF T CELL SUBSETS IN THE LYMPHOID TISSUE OF CHICKENS
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Citation	Japanese Journal of Veterinary Research, 40(1), 50-50
Issue Date	1992-05-29
Doc URL	https://hdl.handle.net/2115/2383
Type	departmental bulletin paper
File Information	KJ00002377575.pdf



DISTRIBUTION OF T CELL SUBSETS
IN THE LYMPHOID TISSUE OF CHICKENS

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The distribution of T cell subsets in chicken lymphoid tissues was immunohistochemically investigated using monoclonal antibodies (Lc-6, Lc-4, 4-2C-2) with specificity for chicken CD4, CD8, and all T cells/peripheral B cells, respectively.

In the thymic tissues, almost all lymphocytes reacted to 4-2C-2. Lc-4 immunoreactive cells were found only in the cortex, while Lc-6 positive cells were detected not only in the cortex but also in the medulla. The cortex just below the capsule demonstrated no immunoreactivity to either antibody.

In the cecal tonsil, most lymphocytes and plasma cells in the lamina propria except for germinal centers, showed reaction to 4-2C-2. All intraepithelial lymphocytes were also 4-2C-2 positive. Lc-4 positive cells were found in the lamina propria especially in the subepithelial zone and villous portion. It was noted that the germinal centers were surrounded with Lc-6 positive cells in the mid and deep portions of the lamina propria.

In the spleen, almost all lymphocytes and plasma cells of the periarteriolar lymphatic sheaths (PA), perivenous lymphatic sheaths (PV) and red pulp reacted with 4-2C-2 antibody. Clusters of Lc-4 positive cells were observed only in the red pulp. Most lymphocytes in the PA and PV showed Lc-6 positive reaction. No lymphocytes in the germinal centers reacted to these two monoclonal antibodies. No immunoreactivity to either Lc-4 or Lc-6 was detected anywhere else in the bone marrow or bursa of Fabricius, while many lymphocytes and plasma cells reacted only with 4-2C-2 antibody.

In the case of exposure to the protein antigen (alum precipitated bovine serum albumin), some Lc-6 positive cells were demonstrated in some germinal centers which were increased in size, while the areas expressing Lc-4 in the red pulp were decreased in size.

These results suggest that the distributions of T cell subsets display a constant pattern in chicken lymphoid tissues and each may perform an important role in the immune response.