

LUTEINIZING HORMONE RECEPTOR (LHR) EXPRESSION IN CIRCULATING CANINE LYMPHOCYTES

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Canine lymphoma is a common malignant tumor in dogs. Lymphoma is 3-4 times more common in spayed female (F/S) and neutered male (M/N) dogs compared to intact females (F/I) and males (M/I).^{1,2} Luteinizing hormone receptors (LHR) have been found in normal and neoplastic canine lymphatic tissue.³ The purpose of this study was: (1) to determine if LHR is expressed in circulating canine lymphocytes, (2) to immunophenotype the lymphocytes (B- or T-) expressing LHR, (3) to quantify the level of cellular expression of LHR in circulating lymphocytes. Venous blood was collected from 12 dogs (3 F/S, 3 F/I, 3 M/N, 3 M/I) and placed in EDTA vacutainers. All samples were transferred to centrifuge tubes, and lymphocytes were isolated using histopaque (1077 density). Nonspecific binding was blocked with Mouse Seroblock FcR (1:10 dilution). Goat polyclonal LHR (1:50 dilution), mouse anti-dog CD3:FITC (1:10 dilution), mouse anti-canine CD21:Alexa Fluor 647 (1:10 dilution), and goat f(ab')₂ IgG negative control:RPE (1:10 dilution) were added to their respective tubes. The cell suspensions were analyzed on a flow cytometer at the Oregon State University Core Facility. Average percentage LHR expression was compared between intact and spayed/neutered dogs using a Student's t test and significance was defined as $p < 0.05$. All 12 dogs expressed LHR in both B- and T-lymphocytes (Table 1). Spaying and neutering increased the expression of LHR in circulating T-lymphocytes ($p = 0.049$) but not in B-lymphocytes ($p = 0.447$). This is the first study to show LHR in circulating B- and T-lymphocytes. Future research will focus on using a gonadotropin-releasing hormone (GnRH) agonist as a complementary treatment for canine lymphoma.

	F/S	F/I	M/N	M/I
B-lymphocyte	8.0±5.2%	6.1±0.3%	20.3±11.2%	19.0±18.1%
T-lymphocyte	13.6±5.0%	9.9±2.1%	19.6±10.0%	11.1±2.8%

Table 1. Mean±SD percentage of lymphocytes expressing luteinizing hormone receptors (LHR) in spayed (F/S) and intact female (F/I) and neutered (M/N) and intact male (M/I) dogs.

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References:

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