

# Changes in human lymphocyte subpopulations in tonsils and regional lymph nodes of human head and neck squamous carcinoma compared to control lymph nodes

## ABSTRACT

In human secondary lymphoid organs, there are an increase in B lymphocytes and a decrease in CD45RA<sup>+</sup> T cell (naïve) numbers. This response is caused by chronic pathogen stimulation in tonsils, while in lymph nodes draining head and neck carcinomas the reaction is triggered by surrounded tumors. During this process, secondary glandular lymphatic tissues develop secondary follicles with alternating amounts of T and B cells, which are then deposited into each layer by microscope intervals through confosilicular structures that may serve as arbitrary functions.

## INTRODUCTION

Tonsils are a small blood vessel found in the upper part of the neck. They are the most important source of blood for the brain, heart, lungs and pancreas. They are also the most frequently affected organ in the world. The majority of patients with tonsillar cancer have a very small tumor. The tumor is usually within the lymph nodes or can be found on the surface of the tonsils, which are a very thin, bloodless skin.

Tonsil tumors are particularly difficult to find on a tumour scan. They are found in many different locations in the body, and with the exception of the brain, are more difficult to track down because of the low number of tumors that can be found. The most common T-dependent immune responses in which T, B and antigen-presenting cells interact at the secondary lymphoid organs are defined by specific factors: a healthy T cell population is located primarily in the paracortical zone (including the interfollicular areas), while B cells are placed in small primary follicles in the cortex, which become secondary follicle(s) or germinal centres (GCs.) Recent research has shown that the GC reaction can occur through or without interleukin and is mediated by both cellular contacts and humoral factors. Due to a lack of information about the origin, migration, and function of intra-GC T cells in human follicles, it is challenging to investigate the GC reaction kinetics in humans. This study compares control lymph nodes with human tonsils and tumour reactive lymphnodes from patients with head and neck's carcinomas. By examining various membrane antigens and markers, it was determined that the identification and distribution of cells in these nodes was achieved best. These markers included CD69, an early activation antigen, CD45RA, a marker mostly associated with virgin cells, and CD44OG, which was mostly linked to memory cells. Additionally, the distribution between control and reactive lymph node was observed, with varying degrees of B and T cells detected in different layers of tissue sections. A speculative model of the cellular traffic into the general capillary chain reaction (GC) is presented, and these results suggest that T cells play a key role in regulation of this chemical cycle.

## CONCLUSION

Remarkable conclusions T lymphocytes are more abundant in human control lymph nodes than in tonsils or tumor reactive lymphnodes. These cells are predominantly T cells with CD45RA<sup>+</sup>, while primary lymph follicles only exhibit an increase in B cell numbers and a decrease in CD44<sup>+</sup> TLLs. Our study suggests that secondary lymphoid flakes are the result of different layers of tissue structures: CD19bright Bcell zone, CD69bright

CD553+ intra- GC T cell layer, lateral T