FARKHONDEH, MOVAHEDIAN ATTAR

Tumour Immunology

Institute of Experimental Immunology
University of Zurich
190 Winterthurerstrasse, 8057 Zurich

attar@immunology.uzh.ch
https://www.immunology.uzh.ch/en/researchunit/oncology/staff.html

KEYWORDS – Tertiary Lymphoid Structures, Cancer Immunology, Lung Cancer

ABSTRACT

Primary (thymus, bone marrow) and secondary (lymph nodes, spleen) lymphoid organs develop before birth. In contrast, tertiary lymphoid structures (TLS) can develop in adulthood under different physiological conditions. These include autoimmune diseases, (persistent) infections, chronic inflammation and cancer.

Secondary lymphoid organs (SLO) are highly organized structures with distinct zones for B- and T-lymphocytes. SLOs form a hub for the induction of adaptive immune responses. TLS often present with organization similar to that of SLOs such that a distinct central B cell zone is surrounded by a ring of T cells. There is evidence that TLS not only mimic the structural body of SLOs but are also functionally similar to them in the sense that they can locally support the induction of adaptive immunity. Whereas presence of TLS in autoimmune and chronic inflammatory conditions is associated with worse outcome, building evidence is pointing at its prognostic survival advantage in a growing number of cancer types such as that of the breast, colon, and lung.

We thus propose that increased numbers of TLS in tumour tissue are beneficial in cancer by acting as on-site locations of tumour-specific adaptive immune response generation.

Therefore, I focus on the characterisation of mechanisms involved in the formation, maintenance and functionality of TLS in models of lung cancer – a disease in which we have observed a strong correlation between the number of TLS and patient's survival.

SPECIAL TECHNIQUES AND EQUIPMENT

Immunofluorescence, Histology, Microscopy, Flow cytometry, Molecular Biology, *in vitro* cell experiments, *in vivo* murine tumour experiments