Summary

Lung cancer is the leading cause of cancer-related death worldwide, and is the third most common cancer type; it can be classified into two subgroups based on histology: non-small-cell lung cancer (NSCLC) and small-cell lung cancer (SCLC). The 5-year survival still remains poor and despite the existence of several distinct tumour phenotypes, therapeutic decisions are mainly based on clinical features such as stage or performance status. This highlights the need for new diagnostic and prognostic biomarkers in different types of samples (such as blood, fresh-frozen tissue or formalin-fixed, paraffin-embedded [FFPE] samples).

The field of tumour immunology has changed in the last decade, and it is now accepted that the immune system plays a pivotal role in cancer. Although the immune cells that infiltrate the tumour microenvironment are potentially capable of eliminating tumour cells, they cannot prevent tumour development and progression. Tumours acquire mechanisms to regulate their immune microenvironment such as the release of a series of factors to subvert normal reaction mechanisms, the modulation of co-stimulatory pathways, also known as immune checkpoints, and the induction and attraction of suppressor cells (myeloid-derived suppressor cells, tumour-associated macrophages, and regulatory T cells). The potential effect of the patient's immune system on clinical outcome is important for the identification of prognostic markers as well as markers that predict treatment responses. The study of immune-related markers, especially those implicated in immunoregulatory processes, could provide valuable prognostic information that could help in many applications in future clinical practice.

Thus, the objective of this thesis is to characterise cancer immunoregulation biomarkers and to evaluate the possible correlation between these biomarkers and clinicopathological and prognostic variables in patients with NSCLC by the use of well-tested and accurate techniques such as quantitative PCR and immunohistochemistry. Furthermore, this study will provide information about the immunological features of the tumour microenvironment in NSCLCs.