Circulating autoantibodies elicited by the patient’s own immune system after exposure to cancer proteins are emerging as promising biomarkers for the early detection of cancer. An advantage of autoantibodies as biomarkers is their production in large quantities despite the presence of a relatively small amount of corresponding antigen. Identification of circulating tumor antigens (HA-receptors) or their related autoantibodies provides a means for early detection and diagnosis of cancer. During tumor progression HA-receptors are over expressed in cancer and transformed cells, but show little expression in normal differentiated cells.

Many HA-receptors such as CD44, RHAMM, P-32, and TSG-6 have been implicated in human carcinogenesis using the antibodies that were generated against these proteins. Among these HA-receptors, CD44 has been studied very well in various types of human cancers, and its expression is correlated with a favorable prognosis in some cancers. But unfavorable in other diseases. Other HABPs have been studied only in a limited number of cancers. Given the differential expression of the known HABPs in human carcinogenesis, the possibility of common HA-receptor involved during human tumor progression is still speculative. Although human antibody response to HA-receptors has not yet been described in cancer patients, we examined prevalence of autoantibodies to HA-receptors in cancer patients with a specific ELISA using human circulating antigen. In accordance with this in the present study an attempt was made to detect autoantibodies to HA-receptors in variety of cancer patient’s serum and which can be used in the early detection and diagnosis of cancer.

In the thesis, the first chapter deals with brief overview of hallmarks of cancer and cancer classification. HA-HABPs, tumor associated autoantibodies and their application as biomarkers. Chapter two This chapter gives detailed information about the materials, reagent preparations and methods were used for experimental purposes in this study. The third chapter deals with the Detection of autoantibody to HA-receptor from human normal and cancer serum by western blotting and ELISA techniques. The fourth chapter deals with the Purification of circulatory tumor associated antigen (HABPs) and autoantibody IgM by conventional chromatography techniques. The fifth chapter deals with the interaction of autoantibody with HA-receptor and determined the homology with known HA-binding proteins with immune pull down and cross reaction experiments by western blot methods.