Cancer is a class of disease in which cells grow abnormally and form a tumor, the tumor cells can invade and metastasize near by tissues by breaking down the extracellular matrix (ECM) molecules. Hyaluronan is a major component of ECM. Although HA is a simple unbranched disaccharide that repeats thousands of times, reaching a molecular mass of several million Daltons, it has a remarkable array of biological functions. HA involves in embryogenesis, inflammation, and wound healing along with its crucial role in tumor progression. This is unusual because among all the glycosaminoglycans, it is the only one that is not sulfated nor modified in any other way throughout its length.

The hyaluronidase enzymes can degrade HA. The HA polymer takes on different biological properties as it becomes cleaved. The hyaluronidases are presumably involved in size-specific cleavage reactions. Binding proteins and hyaluronidase inhibitors are presumed to be involved in generating fragments, as well as maintaining polymers at a particular fragment length. But how this occurs is entirely unknown. To understand the entire processes of cleavage and maintaining the size of the HA and their involvement in tumor progression it is essential to know their binding proteins, through which they can perform these functions. So, the current study was conducted to identify the receptors for hyaluronan fragments of different size from tumor tissue origin.

In the thesis, Chapter one deals with brief overview of cancer and introduction about hyaluronan, hyaluronan oligosaccharides and their receptors involvement in tumor progression. Chapter two gives detailed information about the materials, reagent preparations and methods used for experimental purposes in this study. Chapter three deals with the preparation of HA oligosaccharides present in tumor tissues in large scale and their characterization by FACE analysis. Chapter four deals with the studies carried out to look for the expression of binding proteins for different size HA fragments and their purification. In Chapter five, characterization of HA hexasaccharide binding proteins was carried out by understanding their homology with known HABPs. In the Chapter six, histochemical localization of different size HA fragments was carried out to know the distribution of their binding proteins in tumor tissue sections.