Summary & Conclusions
Myriad number of intercalated factors plays a role in maintaining normal physiological conditions. Malfunctioning of any one of these might result in pathophysiological conditions, which are deleterious to life. Cancer, a diseased state, is one such a culmination of more than a factor, wherein the normal cells are irreversibly converted to a state where the neoplastic cells loose control proliferation. Some of the factors that are toxic electrophiles generated either endogenously or due to exposure to xenobiotics. Cellular system, however, are equipped with detoxification systems, among which GSTs constitutes a primary pathway. Pre-clinical studies have correlated enhanced metabolism of electrophiles with increased levels of GST isoenzymes within various tissues. Expression of GSTs in an individual can therefore provide an indicator about the metabolic potential of their tissues and possible deficiencies in the susceptibility to dietary or environmental carcinogens. GSTs are over expressed in certain tumor types, therefore measurement of GST and their subunits in serum or in pathological specimens can be used as diagnostic markers for certain types of cancer. Also over expression of GSTs have been implicated for the development of drug resistance during the course of cancers treatment.

Tumor markers are substances that can be detected in higher than normal amounts in the blood, urine, or body tissues of some people with certain types of cancer. A tumor marker may be produced by the tumor itself, or by the body in response to a cancer presence. When diagnosing cancer, blood and pieces of tumor tissue are tested, these tests can help to determine the characteristics of the tumor (aggressiveness, rate of growth, and degree of abnormality).

The present study was aimed to reveal the effect of selected chemical toxicants such as acrylamide on the rat liver GSTs proteins and tissues.

The GST protein was purified to electrophoretic homogeneity using GSH linked affinity chromatography. These proteins as electrophoresis showed three protein bands such as yc, yb and ya with molecular mass of 27.5, 26.3 and 25 kDa
In order to understand the role of GSTs on exposure to AC with 24 hours intervals and various concentrations, GSTs were purified to electrophoretic homogeneity and the results were compared. These studies revealed that \( \alpha \)-class GSTs (Yc) & (Ya), and \( \mu \)-class GSTs (Yb) are expressed predominantly of AC treatments. Further the substrate specificity studies also revealed the elevation of \( \alpha \) and \( \mu \)-class GSTs.

Using Western-blot analysis with polyclonal antibodies (liver) with equal concentrations of acrylamide treated liver cytosols showed induced expression of Yc, Yb and Ya subunits.

Severity of histological lesions had been observed in various doses of AC administered rats making them less fit for better survival. With 64mg to 96mg dosage of acrylamide, liver showed aggravated histopathological conditions which was found to be lethal.

Finally my study concludes that acrylamide as a chemical influences the induction of \( \alpha \) and \( \mu \) - GST proteins in rat liver. The induced \( \alpha \) and \( \mu \) proteins shall serve as markers of chemical toxicity. Further histological changes concluded that GST can also serve as marker for the determinations of tissue damage such as liver and hepatocyte damage.